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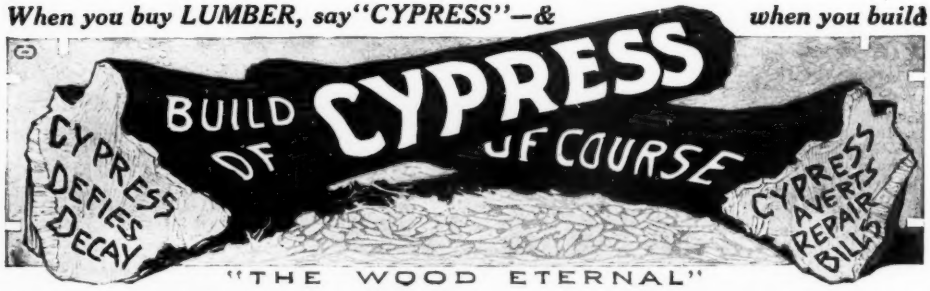

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INDUSTRIAL-ARTS MAGAZINE

Vol. V DECEMBER, 1916 No. 12

The Reminiscences of a High School Drawing Teacher

School Spirit—Maud M. Miles, Kansas City, Mo.

YESTERDAY was the last day of school before Christmas, and the work of the week was laid aside for special closing exercises.

The first-hour class in my room is my Life Class. Baby Ethel, just 4 years old, the golden-haired sister of one of the girls, has been posing for this class. Tiny as she is, she sat on her lofty "throne" as quietly as any member of the class could possibly have done. She is a beautiful child and a decidedly difficult subject for a class of beginners in the study of portraiture. Other classes who have had far more training than this are, under other teachers, patiently studying the block-head. The only use I have for the block-head is to keep it out of my room. The plaster cast of the anatomy of the head is permitted to stand on the shelf but rarely, if ever, is a student requested to draw it. Skulls of various types of heads are placed in the room whenever I can have them, but we do not spend much time in making drawings of them. They are there for comparison. I have a decided personal preference for the study of the human head right at the start. My own experience as an art student has taught me that the instruction in the earlier classes of the average school is the sort of training a student has to unlearn or forget, before he can advance very far. Of course, no member of the Life Class is equal to making a good portrait of Baby Ethel. It is wonderful how hard they have worked because they loved the little model and were anxious to succeed.

My attitude toward them has been as encouraging as it could be and no student has been too discouraged to continue in his efforts. Some of the results on paper would do fair credit to a professional art school, but whatever the results on paper have been every student in the class has grown, and grown amazingly, while making this drawing.

When our vacation is over, little Ethel will pose for another week in order that some may continue the drawings that they are making. Others who have not succeeded so well in laying a foundation are making fresh drawings every day. I do not permit a student to carry a drawing very far when his foundation is weak in construction to begin with.

I appointed a committee of three of the students in the class to arrange a baby party to be given by the class to little Ethel yesterday.

The members of the committee were: wee Rebecca, a Jewish girl; beautiful Gena, an Italian Catholic and demure; Gwen, a Scotch Presbyterian. Whatever other high schools may be, ours is absolutely an American institution. The next play to be given by the dramatic classes of the school is "The Melting Pot." This play has not been selected because our students need the lesson, for no other school has ever learned the lesson better than the students of our school. As long as I have taught here, I seldom, if ever, have known who are the rich and who are the poor among my classes. Absolutely, no distinction is made between them by the teachers or pupils. Race and nationality are things that are entirely forgotten. We are a school of students and teachers all bound together by genuine school spirit that amounts to the true spirit of brotherly love of each to the other.

This Christmas festival was for every child in the class an expression of love for little Ethel. To some it was a most sacred and almost religious occasion. To others, it was more theoretically, a festival of love, and to still others perhaps, only a vague ideal but an ideal that was the most real thing under the roof of our high school yesterday. Vague, perhaps, in the *mind* of the student, but glowing and beautiful in the heart of everyone; the idea of brotherly love.

The very first child in the room that morning was tiny Rebecca. Whether she had ever trimmed a Christmas tree before or not, I do not know, but she certainly enjoyed doing so and did it most beautifully. I found I was not wanted when I came to school in the morning, for these eager children had already taken possession of the schoolroom an hour before school time, so, I went visiting and let the good work go on. When wee Ethel arrived she was completely awed by the marvelous arrival of Old Santa at school. Each pupil had brought her a gift, and had wrapped it up in the most approved

Note—This is the first installment of a series of articles recounting experiences of a teacher of drawing in a large high school. The succeeding articles will take up practical phrases of the art problem in secondary schools.

manner, with stickers, ribbon and tissue paper. Little Ethel held her breath and looked around the tree with her big blue eyes. The children were as still as mice, not wanting to miss anything she might say as she was so awe-stricken that she could only speak above a whisper. Her wonder was that Santa Claus had come two days too soon. How he had managed to come down the chimney, was too big a problem for little Ethel. She was placed on a stool beside the presents, and very carefully her little fingers removed the stickers, being careful not to tear, muss or soil them. Every detail of the children's work was appreciated. First, she noticed the doll with golden hair, and discovered with joy that it went to sleep. She held it close in her arms, and then she held it out at arm's length. She said, "It has yellow hair just like mine;" and she picked up a lock and kissed it. A paper doll and its complete wardrobe next attracted her attention. She liked this "dolly" best in the red riding hood costume but decided that the party dress was the more appropriate dress to put on, because this was a party. So the dolly was dressed in this and put in a chair beside little Ethel.

The biggest and most mischievous boy in the class had fairly held his breath thru all this performance. Boxes of candy were opened but were viewed with too much reverence and respect by Ethel for her to think of eating any. The toy dishes, glasses and punch bowl were admired and touched by her dainty fingers, but the candy seemed too wonderful even to be touched. Ersal clerks in a drug store when he is not in school, and he was called upon to open the package of bottled candy, as it took an expert to do it. All this interested the class and it seemed a solemn ceremony for tall Ersal to open the package. Really the thing was too solemn for a festive occasion, so I decided to cheer them up a little bit. My experience in the classroom has usually been to restrain the children, but this was one occasion when I deliberately set to work to induce them to be more jolly.

After Ethel had admired the slate on which she could draw, and the highly colored book telling of the three bears, which story it happened she knew by heart, and related to the children in a scared little whisper, I took the rubber ball and placed little Ethel in a line with the class who were sitting along the sides of the room, in two rows.

"Dibbies on being teacher first," I said, and I bounced the ball in the face of a jolly boy, known to the class as "Fatty." "Fatty" was "game" and caught the ball which he bounced back again to me. The one who missed the ball took his turn at being "teacher," so the ball went round and round the class until the fun was fast and furious.

I wonder who had the best time at the party. I am absolutely unable to decide. I wonder if anyone could have had a better time than I. Baby Ethel was so full of it that she fairly held her breath, and the face of little Rebecca, hardly bigger than a doll herself, glowed with happiness. Boys and girls alike were as happy as happy could be and yet in a quiet and tender sort of a way that I have never seen equalled in any classroom. I wonder if there is a dearer class anywhere in the world than that first-hour Life Class of mine.

The science department had loaned me their electric lantern and some of the boys knew how to run it. I had post card pictures of many of the paintings that I saw in the Eastern art galleries last summer. These were shown to the last five classes with just enough cards of scenery and places of interest to add variety and to keep it from being an art exhibition, and consequently a drawing lesson.

It was a sugar-coated lesson in art appreciation and I tried to say just as little to the pupils as I could about the pictures. I showed enough views to give them an idea of the country and ideas of architectural peculiarities of the cities where these art museums were. I had procured all the post cards I could find at five of the best universities of the East, showing the buildings and other things of interest around these universities.

As I spent little time in talking we had time to see a great many pictures. The children enjoyed it, and I found that I was not very tired when the day was over. My associate felt that time was too valuable to waste in such a frivolous way as this, and her classes kept on with their work, altho I had invited them to join us in our festivity.

Perhaps she is right and I am wrong, but it seems to me that my children accomplished more work than usual the last few days of school. I had told them that if they did not need the time for their work, we could have a special program, with which to close the week. Yesterday was Thursday, the last school day of the week. As far as I am able to judge, we have never done a bigger week's work in our classes than that we accomplished in the three preceding days. I believe that much can be done in teaching art appreciation by keeping the student body in the proper working spirit. How much music would one get out of a bird if he took the bird out of its cage and held it by the back of its head, and then said in a severe tone of voice, "Now, Dicky, sing or I will choke you." Dicky might squawk, but I doubt if there would be any music in the notes he would give. That squawk which I am now imagining would sound much as the art work looks that is done in some classes where the teacher holds a tight rein and drives, all the time, to get immediate results.

Another thing that helps the art work in our school is the fact that we have a remarkably fine

music department. We had a musical program in the Assembly Hall yesterday that was beautiful. Experienced as I am in high school life, the program was a revelation to me. The music consisted entirely of Christmas music and was sung by both the boys' and girls' glee clubs accompanied by the school orchestra. "Ave Maria" was played as a violin solo by a small Jewish boy in knee trousers. It was a performance of which no professional need be ashamed. The chorus work was good and full of art feeling, and I am sure that the drawing students must have gone back to the work better prepared to be artistic than they were before they listened to this program. One number sung by the chorus had a solo by two members of the chorus. These voices were particularly high and clear soprano. One of these girls who sang amazed me by the strength, purity, and sweetness of her voice. She was a girl who drew so badly in my classes that I considered every hour that she was with me one of affliction, and yet she had art in her soul that came out wonderfully in the form of music.

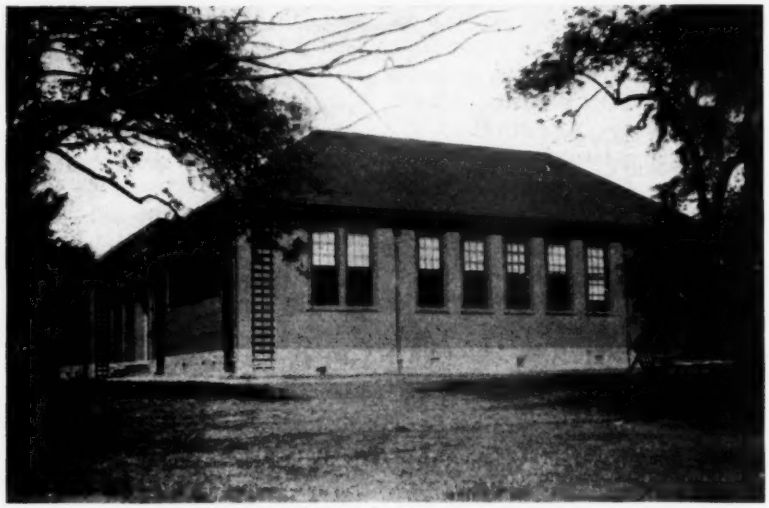
I do not believe that she could have expressed herself so well in music if she had never tried to draw or paint. The only singer on the stage who was not a student in our school at present was a graduate of several years ago. She has never had any other music teacher than the one who teaches music in our school. She sang contralto, a solo that was worthy of a high class professional. As she stood before us singing, my mind went back over the years of my acquaintance with her. Never, in my classes, have I had a girl who was more of a mad-cap and more brimming over with pranks than she.

Now she is the wife of a preacher, and a more saint-like, charming and beautiful young matron it would indeed be hard to find. It was this power to express herself in music that developed the beauty in her soul, and she and her music are her husband's chief assistance in his work.

What if she had never taken music in the school! Suppose there had been no music department! If she had never learned to express the higher ideals that were lying dormant in her nature, would they ever have come to uplift her? If the only art she had ever studied had been the art of drawing, I believe she would have been a mad-cap or butterfly woman today. While I have much sympathy with the trade school idea and believe that education should be practical, I feel that the manual training high school is absolutely the only high school that gives the student a chance to discover himself.

One who graduates from such a school as ours should have discovered in what way he can best express himself. Then it ought not to take him long to begin developing means of giving that expression. It takes a life time to develop it fully. I believe there are many people who would have been better men and women if they had learned the language, or art, or trade that was the most natural means of expression to them. If one has something in him and then learns how to express himself, he begins to live; and some people seem never to have lived at all, even when their bodies die at a ripe old age.

Subtract hard work from life, and in a few months it will all have gone to pieces. Labor, next to the grace of God in the heart, is the greatest promoter of morality, the greatest power for civilization.—*Samuel Chapman Armstrong.*



MEN'S OCCUPATION PAVILION, BLOOMINGDALE HOSPITAL.

A New Vocation—Diversional Occupation

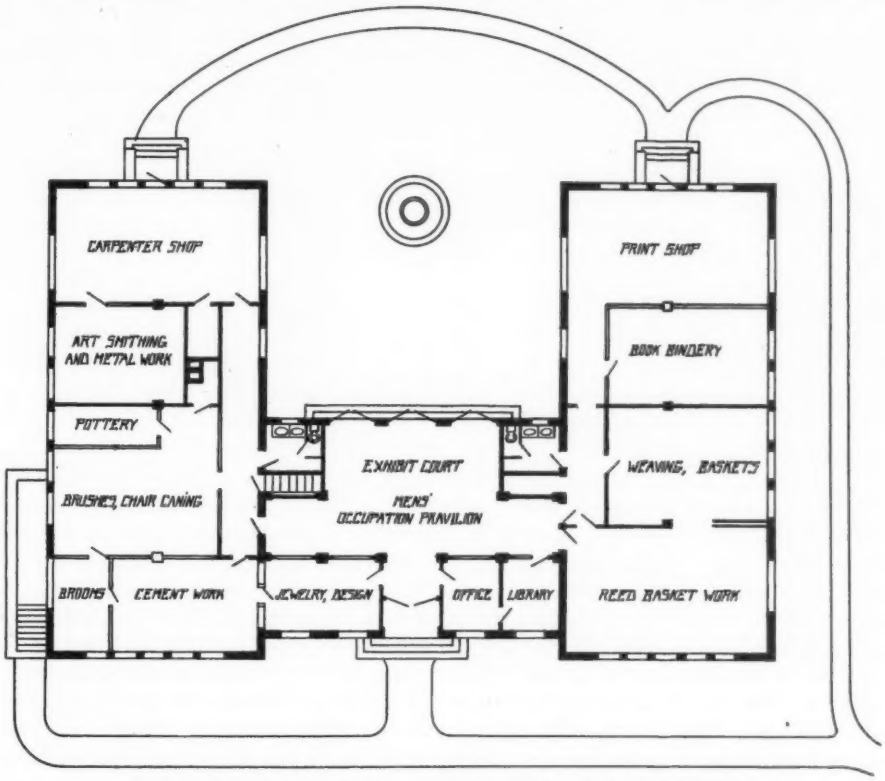
Louis J. Haas, Director of Men's Occupation, Bloomingdale Hospital, White Plains, New York

ABOUT twenty-five years ago it was recognized that occupation of some kind would be of value in the treatment of persons suffering from mental disorders —occupation which would divert the patient's thoughts from himself and his condition—work which would employ the time usually spent in idle brooding and possibly give him a good deal of satisfaction in the doing. And altho it was believed that such work might be of therapeutic value, little was accomplished at this time. True, certain patients were employed in gardening, care of the grounds, working in the kitchen or helping about the halls in numerous ways. Those who easily adapted themselves to this kind of occupation were employed, but little was done to meet the needs of the larger number to whom this work did not appeal, and who could not adapt themselves to it. So for many years after the value of occupation was recognized, little was accomplished. There were two reasons why this should be: First, it was difficult to find occupations of interest to men especially; and, secondly, it was difficult to find persons competent to teach such subjects to sick persons.

Altho patients have been employed thus during all this time at Bloomingdale Hospital, and even before this time, it was not until five or six years ago that a department of occupation for women was organized, and about four years ago the work with the men had its beginning. The growth of the work has been quite rapid and its success and its value so recognized that now each department has its own buildings, and director and directress. One of these buildings, the Men's Occupation Pavilion, designed to meet the needs of the work, was only completed and occupied this spring. The work has now reached the point where it is recognized as a vocation—a vocation that is quite different and new in that, until the present time, few if any have been especially trained for this work. This work has been well named Diversional Occupation, for its first and chief aim is to be diversional. It aims to so interest and concentrate the mind in the performance of certain kinds of satisfying work that the patient will forget himself for this period of time. Thus the forces of nature will have a chance to co-operate with other agencies which have been set at work, to bring about the desired relief—in this sense, a curative agent. In other cases the doing of a piece of work, each piece better than the preceding one, is a certain satisfaction to the doer and the pleasure thus derived is all that is hoped for. But occupation may be of still greater service than simply a curative agent to some patients, great as this service is. Some persons on regaining health feel the need of a craft which will act as a healthful recreation, absorbing the attention and relieving the mind of business cares and worries. Others have to face the problem of a new and more suitable vocation. It is possible in such cases to give so thoro a training in certain crafts that they may be used as an adjunct to one's present vocation or to take its place entirely. Thus the standard of work accomplished must be just as high as that of any vocational school, even tho the methods employed are different. Of late years teachers have recognized that more than one type of boy and girl come to them for guidance. They come from many different walks of life. Some have more power to grasp and

retain new thoughts quicker than others. Some are more interested in some things or all things than others. Yet all may be reached by one way or another. The school that serves the community most is the one whose method of presentation of subjects is flexible enough to meet the different types on their own level and lead them upward. And so in Diversional Occupation one must study personality that he may be able to adapt his method of presentation to reach all the different types met. There are those who take no interest in anything; those who are over confident, and those who have no confidence in their own abilities whatever; the elated; the depressed; those who are so interested in everything that they cannot concentrate long enough to accomplish anything, and those who refuse to work. Thus it is seen that the modifying or adapting of one's method of presentation of a subject to meet the requirements of patients is by no means easy as it often means presenting the hardest object first, simply because the patient is interested in it. The interest is something to work with, even tho the patient is not capable of tackling so difficult a problem. The work is entirely individual. Class presentation of a subject is impossible and impracticable. In the organization of occupational work then, the important thing is to know what types of patients are to be treated. Next what facilities are available for the presentation of different crafts. If the facilities offered allow of careful classification, a number of subjects may be selected that have known therapeutic value.

The plan of the Men's Occupation Pavilion at Bloomingdale Hospital shows how carefully the building was designed, and the rooms arranged to meet the needs of the work. One enters a large court which is used to exhibit permanently the best examples of work of the different departments. These exhibits, it is hoped, may be augmented by examples of work of master craftsmen, gathered here to serve as a source of inspiration and food for growing interests. From each end of the court one enters into the different classrooms or shops. Definite reasons existed for the arrangements of the rooms. On one side are, first, two rooms given to basketry and weaving. Occupations requiring the use of practically no tools; work suited to patients who would be annoyed by noises caused by some occupations and who could not be trusted with tools. Next is the room given over to bookbinding; an occupation making no noise, and as practiced here, requiring few tools. Then comes the print shop. Here the only noise is that made by the press. Starting at the other end of the court, one enters first the jewelry shop, then the cement room, pottery, brush and chair caning and broom rooms; all occupations involving



PLAN OF MEN'S OCCUPATION PAVILION, BLOOMINGDALE HOSPITAL.

little noise. At the end of this wing is the carpenter shop, metal and blacksmith shops. Thus all the quiet occupations are in the front part of the building while all occupations involving noise in use of tools are at the rear of the building where they do not disturb. This is a decided advantage for some could not work at occupations which suit their needs if the noise others are making could be heard. This arrangement also divides the work into groups that has another advantage. Work requiring few or no tools are grouped together in certain portions of the building, while those requiring many tools are kept in another portion of the building. This arrangement has proved satisfactory in every way.

Now a word as to why these different subjects should be included in the work of an Occupation Department which has been so completely and carefully organized. Experience has shown that three classes have to be treated: First, those who cannot be intrusted with tools to work with; second, those who can be intrusted with tools but seem to be confused in the use of tools; third, those who may and are capable of using tools and desire to be so employed. Therefore, we have in the first class such subjects as basketry weaving, brush making and chair caning; subjects requiring the use of practically no tools and which may be used as occupation for people who are very sick. In the second class are included cement work, pottery, bookbinding and printing; subjects which require much more technical ability yet do not require the use of many tools. In the third class are included metal work, jewelry, carpentry, broom-making and art forging; subjects which require the continual use of many tools, much supervision on part of the instructor and the ability of the patient to adapt himself to the use of tools. For these reasons separate rooms were allotted to the above named subjects and the department so equipped and organized that these subjects are being taught simultaneously to the different classes of patients. Other forms of occupation are presented whenever a patient is found to be capable of developing a liking and aptitude for them, so that at times a patient may be occupied at mechanical or freehand drawing, designing, clay modeling or painting. One room is adaptable to any of these uses as the need arises. These subjects are only valuable as occupations where the patient has some ability along these lines and really desires to be so occupied. Among women these are much used occupations as the ability to draw, paint and model is more frequently found.

It may interest the reader to know how these different subjects are presented. The method of presentation has to be adapted to the individual case and, as most every case is unusual, some of the methods are quite different from those in practice in other schools. Yet some might be of use in the handling of unusual cases in other schools. Most of the patients start occupations with either basketry, weaving, brush-making or chair-caning. Some are able to receive a careful explanation of the first principles involved, are interested and go right to work in an intelligent manner. But the lot of the instructor is usually not so easy. Some are not interested and do not wish to work. Neither the beautiful examples around them nor the work the others are doing create an interest, and it is only after a good amount of coaxing that they consent to do anything. Of course all instruction is individual and all demonstrated. No other method would reach these people. So a most simple problem is selected; for example, a reed mat, and the patient is shown how to cut the spokes to proper length. In some cases this has to be done for him as he is too confused to get them all anywhere near the same length.

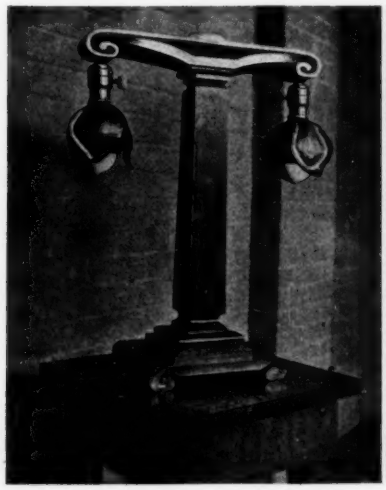
Then the weaving is demonstrated and usually the patient commences to work after seeing the teacher weave a little and on being told how to count that particular weave, altho sometimes not until his hands have been actually guided thru the mechanical operation of the work. Often the interest lasts only a few moments and then the instructor must patiently coax it to life again, or possibly go thru the demonstration again as it is forgotten. But patience is finally rewarded; interest is aroused and the work progresses. The only things to watch for now are the mistakes which are bound to appear and sometimes require tact to correct without discouraging the worker. A definite sequence of progressive work is planned and carried out in each case if possible, but often one receives a patient who does not wish to do the simplest things. To attempt to show him that it is necessary to start at the beginning only disperses what little interest he has in working. So in this case one must start at the wrong end, modify an elaborate problem as much as possible and get some sort of result, thus clinching the man's interest, afterwards tactfully working him back to a problem which is within the scope of his ability and then lead him upward to the more interesting and difficult work. The instructor must be ingenious, inventing ways of reaching those who lack interest and are too absorbed with their thoughts, to do as much as the average workers. Thus a man who would not attempt to make a basket, would spend much time winding up the reed and get as much satisfaction out of this occupation; a work which, otherwise, the instructor would do in preparation for a class. From this starting point, by degrees he would be led up to the use of the reed in making baskets.

Some occupations like brush-making and broom-making may be divided up into processes with one person engaged in each. Thus in brushes: Some make the blocks and backs, others mark these with the master block; then they are drilled by another,

Top Row—The Cement Room Showing Moulds and Products; The Court Showing an Exhibit of Patients' Work.
Bottom Row—A Corner of the Loom Room Showing Some of the Basket Work; The Smithing Shop.

others draw the tampico or hair tuff into the holes, they are then trimmed, backed and shellaced and the brush is finished. One who at first might find certain processes impossible, could do others and would get much satisfaction out of the doing. Then as he gets more of a grip on himself and feels once again the pleasure and satisfaction of knowing he can do things, he is in shape to try and should try the more difficult processes of the work. It is important to realize that it should not be taken for granted that because a patient does not at first show interest in certain occupations, or finds it impossible to do anything, that he cannot be interested. New methods must be used to present the work or other interesting occupations offered. Often watching others work, creates an interest. In fact the spirit of work is contagious, and most of us catch it sooner or later. With adults one thing above all is essential, that the work be important; men especially want to feel the work they are doing is of some account. True we call it Diversional Occupation, it is designed to be diversional but it also should furnish healthy satisfaction; to accomplish this end the patient must feel that what he does is of use, is good and that there is a definite need for just that particular thing. Whenever it is possible the instructor should make the worker feel the importance of his work. Therefore all problems should be at least useful, and as well made as is possible and in some instances should be artistically beautiful. Then too, the therapeutic value should not be lost sight of. Care should be taken not to discourage one who after an effort produces a very poor piece of work. The important thing is the diversion and satisfaction it has given him. For him it is and should be an achievement. The instructor must know when to qualify his words of praise, lest he give the man opportunity to feel that he has produced something so good that there is nothing better to aim at and little use even of doing anything else.

Some of the lessons learned in instructing these people might be profitable to those engaged in educational work. How often is a boy discouraged and given up as hopeless, just because the usual method of explanation and presentation of a problem fails to reach him. He is set down as incapable of learning when he is only a little different from the usual boy and a little different explanation, a little more care, or personal appeal in the manner of presentation would reach him. Once reached he will be better understood and often will develop surprising ability. How often is a boy discouraged because his efforts are not appreciated. True, his work is bad, but he made an honest effort. It may have been beyond



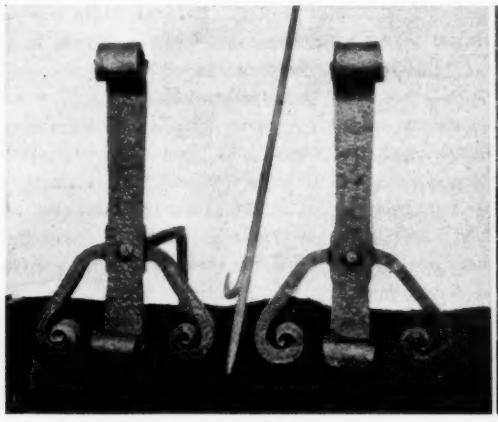
A Lamp—The Result of Co-operation Between Metal and Carpenter Shops.

An Example of the Type of Occupation Products Which Beautify the Halls and Give Pleasure to Others.

him, he may not have thoroly understood; when he fails and is allowed to feel the instructor does not appreciate the effort but instead draws the conclusion that the boy has not tried, he becomes, in fact, just what he has been unjustly judged, incompetent.

One of the surest roads to a boy's interest is to make work glorious. Make the boy feel that every problem he does in the school shops is of real value, is beautiful, has some use to perform and does it. Once let him feel the pleasure of being the creator of a real piece of work and there will be little difficulty in holding his interest or in getting him to understand. This has been found in occupational work to be the only key to the problem of holding the continual interest of a large class who are capable of doing good work and of getting much satisfaction therefrom—a class which is much benefited by occupation but whose interests lag unless thus stimulated, must be made to feel that the work is important and has some other use than only to divert their thoughts from themselves. This, and this only, gives that satisfaction for which they crave; so, altho it might seem that two aims or standards exist in occupational work, namely, to make the work of the highest therapeutic value and then as craftsman-like or artistic as possible, on closer examination it is seen that only one standard exists; that is to give the greatest measure of satisfaction and pleasure thru occupation. To do this the work must be craftsman-like and in many instances the results can be quite artistic.

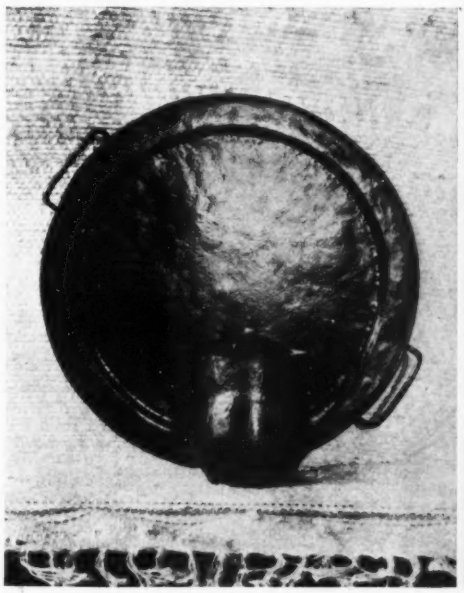
The result of occupation work divides itself under two heads: One is the story of long, weary hours, days and weeks made short, bright and sunny, of men looking forward to the periods of work with as much pleasure as to some outing; in many instances it is the story of regained health of mind, of the return to the world of work with a new outlook and grip on life. Truly a very important result. The other is the economic result not as important as the one above mentioned but yet well worthy of



Ready to Cheer a Vacant Fire Place.

An Example of Cement Work.

notice. This is easily and clearly illustrated by the accompanying pictures of the shops, classrooms and work of the Men's Occupation Department of Bloomingdale Hospital and the naming of some of the things which are being done there every day. The brooms, scrubbing and bath brushes used in the institution are made by the men. Chairs needing it are re-caned. The reed jardiniers, waste baskets, trays, work baskets and many other products of the basket shop are found to be more beautiful and useful in the halls than similar articles procured elsewhere. Products of the cement work such as urns, pedestals, garden seats, and bird baths are used to beautify the grounds. Such an ideal equipment was made possible by the interest and effort of one of the patients. Having equipped itself, the carpenter class then built most of the equipment for the other classrooms or shops, equipment which, considering that it was designed and built to meet the special needs and to fit certain rooms and spaces, could not be duplicated elsewhere. This represents real work, the work of men who, realizing what occupation meant to them, were glad to thus contribute to the equipping of the classrooms and shops where others would be able to enjoy this same privilege, the pleasure and satisfaction of work. The illustrations of rooms and equipment show very clearly how much and how well they enjoyed this work.



Some Products of the Metal Shop.

Reed Lamp Showing Co-operation Between Basketry, Metal Work and Needle Work. (Women's Occupation Department.)

The printshop takes care of all printed forms needed by the hospital. The bookbindery takes care of the binding of all books or pamphlets printed, binds all magazines, and repairs and rebinds all books that become worn in usage in the library. Many uses are found for ash trays, bowls, letter openers, serving trays, and even copper light domes, the products of the metal work, while the andirons, to name just one of the artistic productions of the forge shop, find their way to many a vacant fireplace and with their coming bring warmth and cheer.

The carpenter shop has contributed much to the success of the whole work first by building its own equipment. Those who are instructors of manual training can appreciate what it means to have work benches designed and built especially to meet the need, having the shop they are to equip in mind.

Is it necessary to claim that those returning to the world of work after having had the benefit and experience of Diversional and may we say Vocational Occupation, carry with them a keener sense of appreciation of things useful and beautiful and for all craftsman-like work? But a keenly developed appreciation for the beautiful is not the only or the greatest lasting result. Many continue to use the ability thus acquired to make things that are good, as a pleasant form of recreation, and in some instances the ability thus developed has become a vocation. Is not the work which may accomplish these results, not only of great benefit to the individual, but also a lasting educational asset to the whole community?

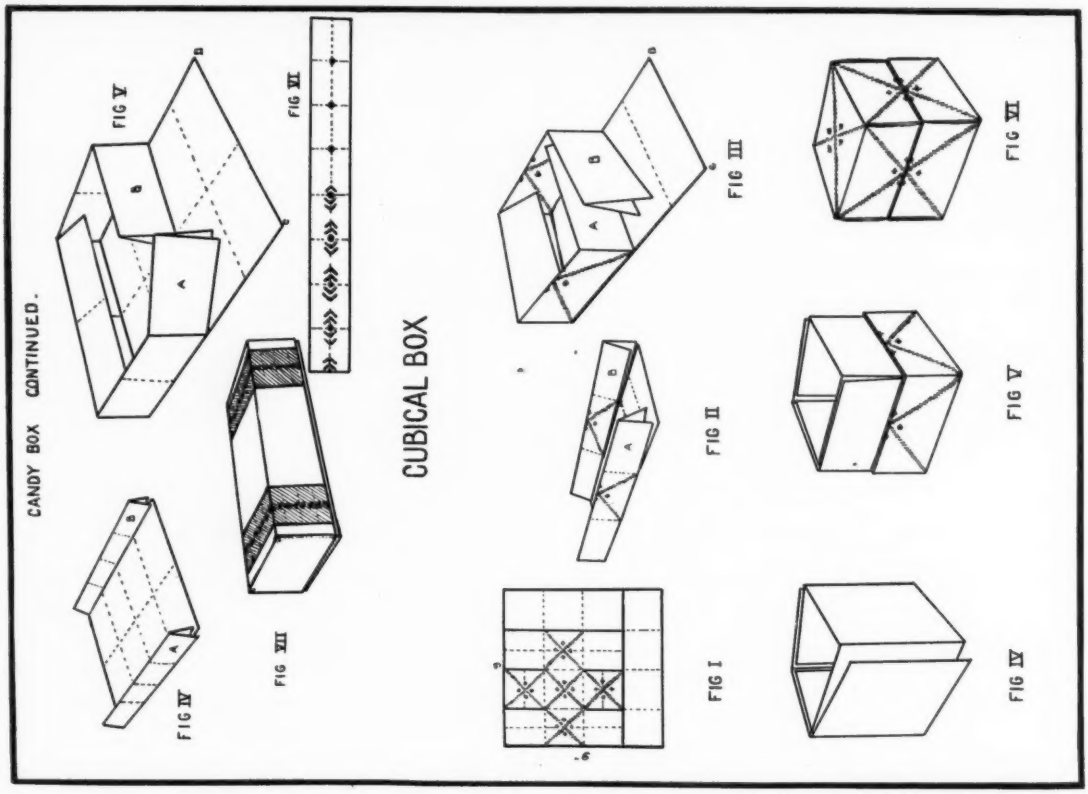


Plate II.

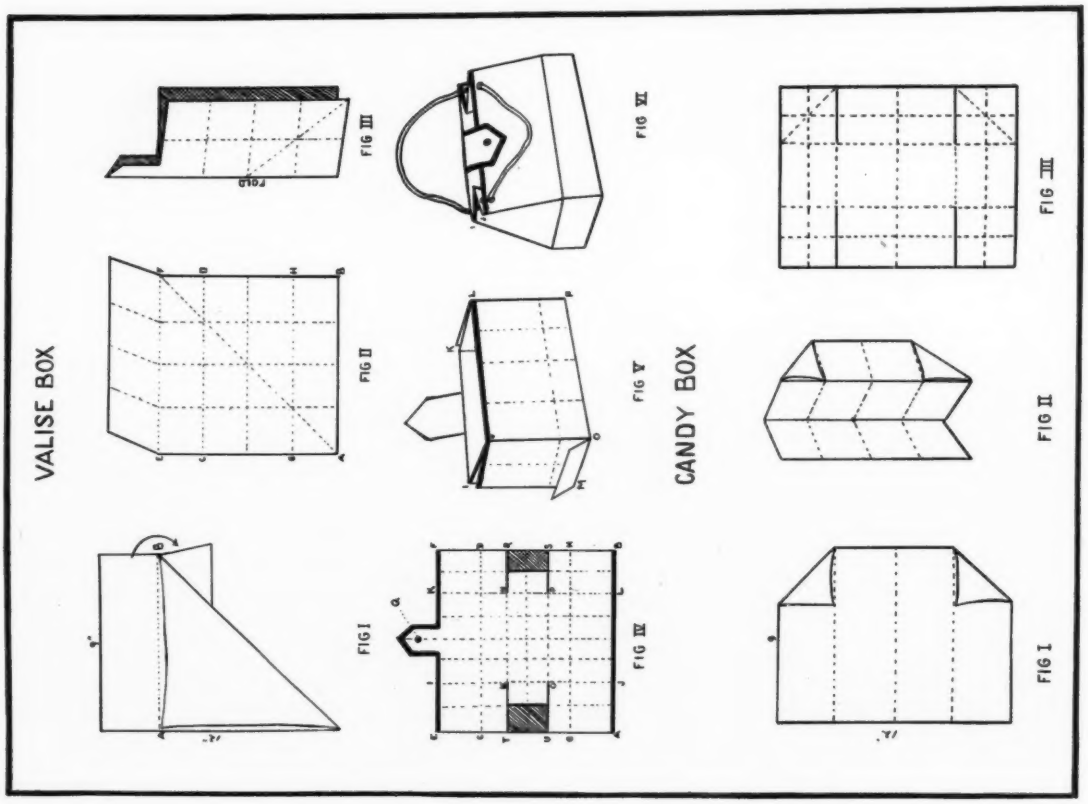


Plate I.

CHRISTMAS BOXES FOR ALL GRADES

Alma C. Field, Assistant Supervisor of Drawing, Providence, R. I., and Lillian R. Field,
Assistant Supervisor of Manual Arts, West Warwick, R. I.

THE importance of displaying to advantage articles to be sold is no small matter with the businessman of today. He is anxious in displaying to draw attention to his goods and their good qualities. To do this well in a pleasing and tasteful way is so important that it has become a business in itself. Even the donor of a gift feels the necessity of this art for the simplest gift may be made doubly attractive by the way it is displayed and every personal touch of good taste that can be put into the wrapping adds to its value.

Teachers and pupils realize this and so there are many requests for patterns of boxes to display or to hold coming to the supervisor.

To meet this demand various kinds of boxes which have been successfully used in the grades are given below. They are arranged according to their difficulty.

Valise Box.

Material: 1 sheet 9″x12″ white drawing paper.
Twine.
Colored crayon.
Paste.

Directions: Fold and cut as in Figs. I, II and III. Then fold AB to CD, EF to GH, FB to IJ, EA to KL, and crease.

Turn paper over and fold FB to KL and EA to IJ, Fig. IV.

Cut on heavy lines and fold up into box, Fig. V, and paste.

When dry pinch together I and J and K and L. Punch holes and thread with twine for handles, Fig. VI.

. The top and edge of lap should be decorated with a line or border before the box is made up. Fig. IV.

Candy Box.

Material: 2 sheets 9″x12″ drawing paper.
2 strips 9″x1″ colored paper.
Crayons.

Directions: Fold and cut *both* 9″x12″ sheets as shown in Figs. I, II, III and IV. Fig. IV shows two sides of the box in position.

Lap CD over AB and crease firmly. Fig. V.

Fold colored strips into eight equal parts and decorate with crayon. Fig. VI.

Paste on cover. Fig. VII.

Cubical Box.

Material: 2 sheets 9″x9″ drawing paper.
Crayons.

Directions: Fold, cut and decorate (green lines and red circles) both squares as in Fig. I.

Fold as in Figs. II and III, lapping CD over AB.

Take one strip of four squares and one of three squares (these were cut off in Fig. I) and lap one inside the other. Fig. IV. This forms the sides of the box when placed inside the base. Fig. V.

Fig. VI shows completed box with cover.

Box with Hinged Cover.

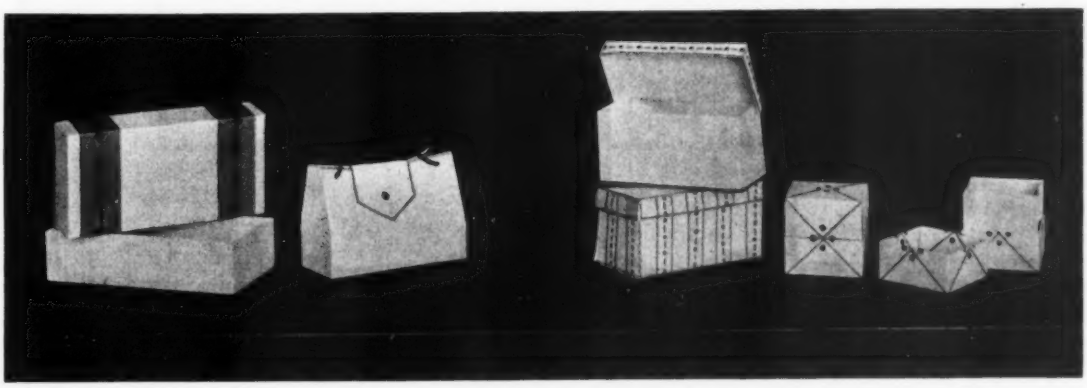
Material: 1 sheet 9″x12″ drawing paper.
1 sheet $4\frac{1}{2}$″x$2\frac{1}{4}$″ drawing paper.
Crayons.
Paste.

Directions: Fold and cut as in Figs. I, II, III and IV.

Fold together as in Fig. V, lapping A, B and C inside the box.

Fold laps on cover, Fig. VI, and paste them.

Decoration: Fold strip $4\frac{1}{2}$″x$2\frac{1}{4}$″ into eight equal parts. Fig. VIII. Lay it on LMNO, Fig. IV, and place dots at the folds. Do the same with the sides and cover. Put in the stripes with colored crayon. A suggestion: Green lines and red circles.



BOXES DESIGNED AND MADE IN THE CLASSES OF THE AUTHORS.

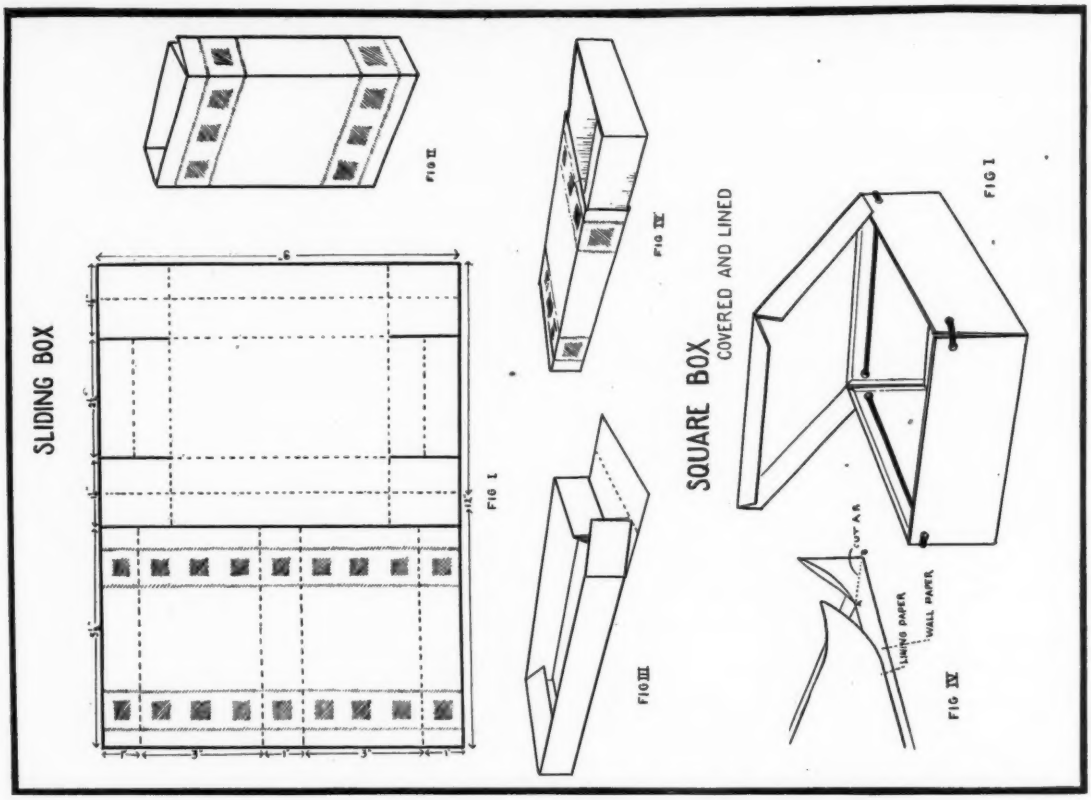


Plate IV.

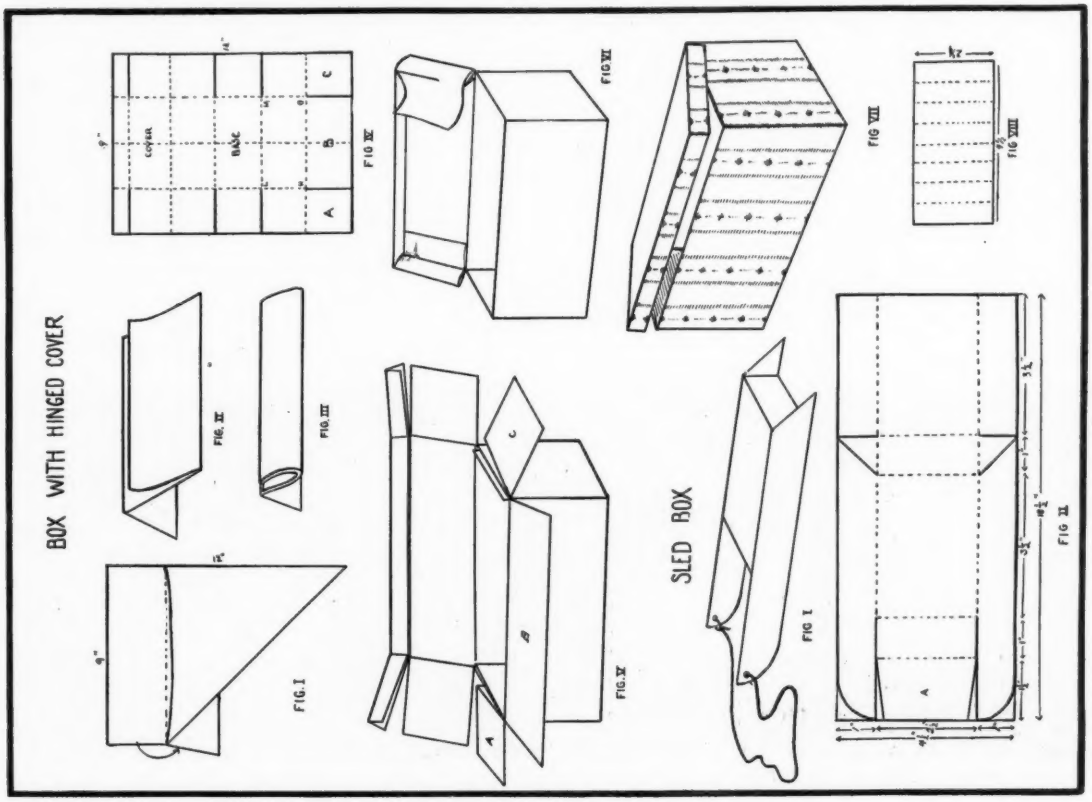


Plate III.

Sled Box.

Material: 1 sheet red cardboard $10\frac{1}{2}''x4\frac{1}{2}''$ (or cover paper).
Twine.
Paste.

Directions: Lay out cardboard as in Fig. II. Score on the dotted and cut on heavy lines.

Paste, leaving A for a lap where the box opens and shuts, punch holes and tie with cord.

Decorate before pasting the cover. Stenciling or stick printing may be used to advantage.

Square Box (Covered and Lined.)

Materials: 1 sheet 9″x12″ white drawing paper.
1 sheet tagboard (oak tag) $12''x7\frac{1}{4}''$.
1 sheet wall paper $13''x8\frac{1}{4}''$.
Boiled flour and water paste.
Cord to match wall paper.

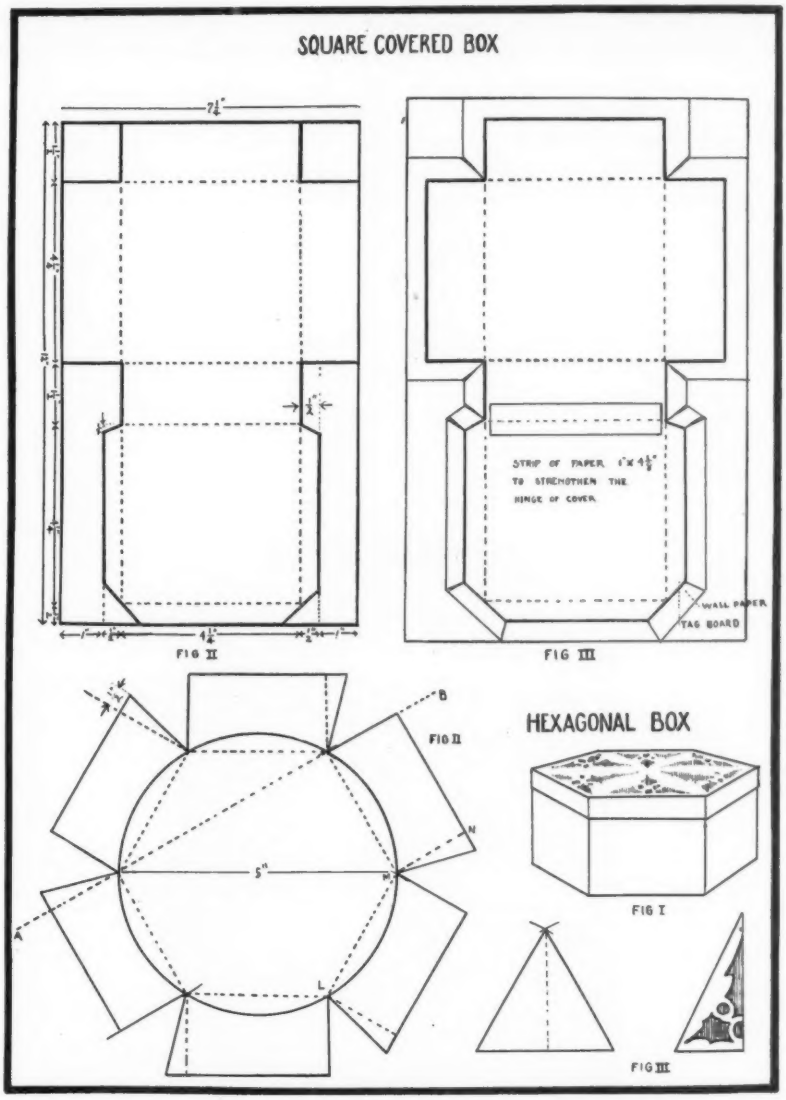


Plate V.

Sliding Box.

Material: 1 sheet 9″x12″ cover paper.
Paste.

Directions: Lay out sheet as in Fig. I.

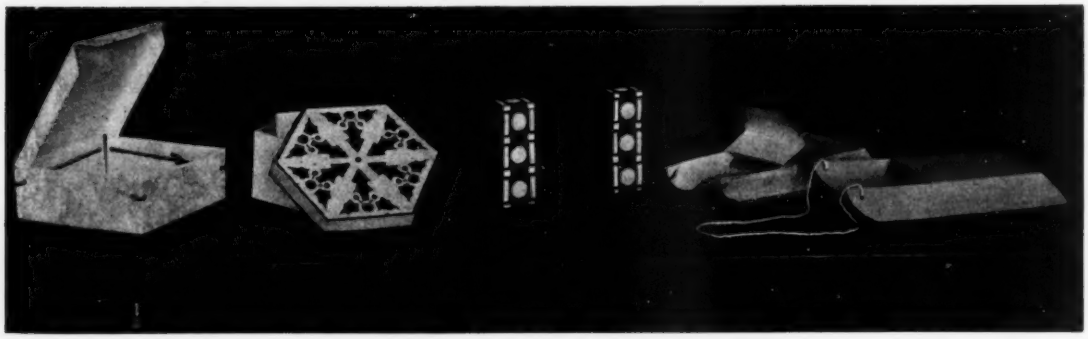
Cut, fold and paste left side of sheet for cover. Fig. II.

Fold inside of box as in Fig. III.

Directions: Measure, cut and score tagboard as shown in Fig. II, but do not fold.

Lay tagboard on sheet of white drawing paper, mark around with a sharp pencil and cut *inside* the pencil lines. This is for the lining.

On the wrong side of the wall paper mark around tagboard again. Measure and mark off for a one-half inch lap on all sides. Fig. III.



BOXES DESCRIBED IN THE PRECEDING PAGES.

Pasting: Cover wall paper with paste and on it lay the tagboard. Turn laps and cut corners. Fig. IV. Paste inside covering. Press flat until nearly dry, then score, fold and tie with cord. Fig. I.

The beauty of this box depends upon the selection of the wall paper.

Hexagonal Box.

Material: 2 sheets 9″x12″ cover paper or heavy drawing paper.
Compass.
Paints.

Directions: Construct hexagon within a circle. Draw lines for sides of the box of indefinite length, AB. The box may then be made any height desired, MN. Fig. II.

Extend top of sides ½″ for laps to be pasted to hold sides together.

The cover is made exactly like the box except for shortening the sides.

Decorating: Construct an equilateral triangle whose base is equal to LM. Fig. II.

Fold this and cut stencil design which fits exactly six times on the cover. Mark out and color. Fig. III and I.

AN EXAMPLE OF PRACTICAL SCHOOL ART.
This cover of the latest report of the Pittsburgh Board of Education was drawn by H. Schwartz, a high-school student. The reproduction is in four colors on chocolate brown cover stock.

Teaching Apprentices the Art of Printing

Robert F. Salade, Philadelphia, Pa.

"Simplicity is, indeed, a very lofty and very effective feature in all true art."—Edgar Allan Poe.

WHY is it that the printing business of the Norman T. A. Munder Company, of Baltimore, Maryland, is so favorably known all over the country? Not because this business house is exceedingly large, for it is not nearly as large as many other printing plants which are not widely known. Not because the Munder Company produces low-priced printing, for as a matter of fact this firm would not accept orders for "cheap" work. The reason why the House of Norman T. A. Munder is nationally known is because it is producing the *finest quality of art printing*. All typography, illustration, paper, press-work, binding, etc., turned out of this establishment is *aesthetically correct*.

Alas, there are few printeries in the world of the Munder character! Thousands of good plants there are, of course, producing high grade work, and there are also hundreds of printing concerns turning out ordinary product rapidly and economically. But, how few are the offices where the highest excellence in printing is attained! This is due mainly to the scarcity of craftsmen trained in the principles of *art* in printing. A master printer of a large city will advertise for a "first class job compositor," (for example) and perhaps a dozen ordinary typographers may apply for the position. But, how many of the dozen will be *artists* in their trade?

The above paragraphs have been written for the purpose of demonstrating the need of art craftsmen in the printing industry today. On every side there are wonderful opportunities for both men and women who understand the *art* of printing. Certainly, there are many real artists now working in the trade, but they are greatly out-numbered by the printers who are just ordinary "mechanics." There are too many of the latter, and not a sufficient number of the artists. Here is where the vocational training schools will have their most important work to do.

During the last decade or so an astonishing number of vocational training, or trades schools, have sprung up in various sections of the United States, and while the majority of these institutions are attending to their mission properly, not a few of them are being mis-directed because little is taught their students about industrial *art*. To give an idea as to how far off of the right track some of these schools are, consider the following facts:

A few months ago the writer was offered the position of instructor in the printing classes of a well known State trade school. The name will be omitted for obvious reasons. After a careful investigation, the writer was surprised to learn that this school was being conducted on a commercial basis—that is, the work being produced in the various departments consisted of regular orders for printing, machine-work, carpentry, patternmaking, etc., sent in by businessmen. A visit to the classroom devoted to printing disclosed unpleasant conditions. The instructor and his students were hustling with their work as tho their lives depended upon doing a certain amount.

Actually, this instructor was *driving* certain boys to produce a greater volume of work! Here, the principal idea was to turn out as much printing as possible, for the instructor's orders were to make the place pay its own way. Under this system, it was a question of *quantity* and not of *quality*. As orders for printing were accepted at lower prices than "legitimate" printing concerns were charging, it can readily be understood how difficult were the instructor's duties of teaching the apprentices the art they had chosen to learn, and at the same time turn out enough product to make the place "pay."

Examination of many specimens of printing which had been done in this school revealed the fact that little attention was being paid to the "fine points" which count for so much in the art. Wrong faces of type had been used for certain papers; practically all of the typography had been poorly arranged and displayed; text-matter had been spaced extremely wide, and very uneven; all of the press-work was of inferior quality, and as for correct color harmony, it seemed to be unknown in this school.

Now, it is a good plan to teach apprentices how to work rapidly, and how to do their work efficiently, but in the actual work of a vocational school speed should be a secondary thought. It is wrong to operate a trade school on a commercial basis, for if a profit is to be made thru the sale of its product, then the work must be speeded up, and the art considerations are likely to be neglected. Who would think of *selling* the work produced in the public schools?

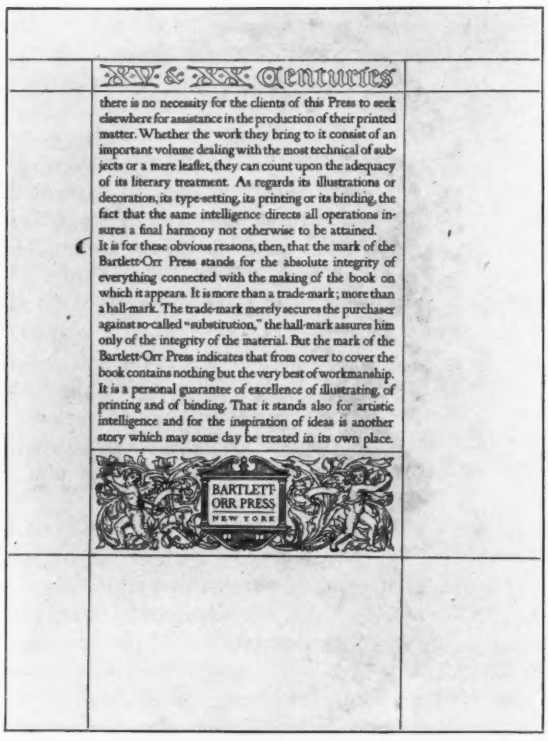
The printing department of a vocational training school should turn out only work of the highest character, and the watch word in everything should be, "Printing is an art." The apprentices should be taught to produce a house magazine of the first class for their school's publicity, and other work could consist of fine folders, booklets, catalogs, wall cards, etc.—work embracing rich color effects, excellent stock, beautiful typographical designs, and perfect

presswork. All of this work could be made useful as well as beautiful. For instance, a handsome little brochure could be devoted to an extract of Robert Louis Stevenson's literature. These booklets could be distributed to the public, either gratuitously, or at very modest prices. In no case, however, should an attempt be made to sell this work with the money object alone in view.

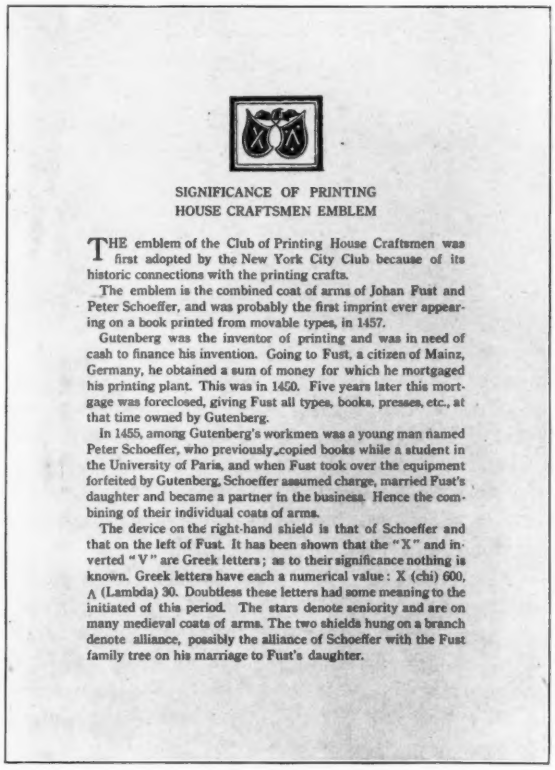
The School of Printing, North End Union, Boston, Massachusetts, is being conducted along the lines suggested in the foregoing paragraph, and because the apprentices of this institution are executing *art* printing exclusively, under the guidance of instructors who are artist-printers, the school has won national fame for its splendid work. Graduates of this school have secured worth-while positions in many of the leading printing offices, simply because they have been trained to produce the very best typography, presswork, book-binding, etc.

Another step in the right direction was made last Fall by the School of Industrial Art of the Pennsylvania Museum, Broad and Pine Streets, Philadelphia. Here a class in Typographical Design was started, the class being in charge of artist-printers, and meeting on Monday and Friday evenings. The work of this school was aptly described by one of the directors as follows:

"The instruction has special reference to the principles involved in attaining excellence in printing.


XV. & XX. Centuries
there is no necessity for the clients of this Press to seek elsewhere for assistance in the production of their printed matter. Whether the work they bring to it consist of an important volume dealing with the most technical of subjects or a mere leaflet, they can count upon the adequacy of its literary treatment. As regards its illustrations or decoration, its type-setting, its printing or its binding, the fact that the same intelligence directs all operations insures a final harmony not otherwise to be attained.
It is for these obvious reasons, then, that the mark of the Bartlett-Orr Press stands for the absolute integrity of everything connected with the making of the book on which it appears. It is more than a trade-mark; more than a hall-mark. The trade-mark merely secures the purchaser against so-called "substitution," the hall-mark assures him only of the integrity of the material. But the mark of the Bartlett-Orr Press indicates that from cover to cover the book contains nothing but the very best of workmanship. It is a personal guarantee of excellence of illustrating, of printing and of binding. That it stands also for artistic intelligence and for the inspiration of ideas is another story which may some day be treated in its own place.
BARTLETT-ORR PRESS
NEW YORK

Beautiful book page. This is the character of typography that apprentices should be taught to produce.



SIGNIFICANCE OF PRINTING
HOUSE CRAFTSMEN EMBLEM

THE emblem of the Club of Printing House Craftsmen was first adopted by the New York City Club because of its historic connections with the printing crafts.

The emblem is the combined coat of arms of Johan Fust and Peter Schoeffer, and was probably the first imprint ever appearing on a book printed from movable types, in 1457.

Gutenberg was the inventor of printing and was in need of cash to finance his invention. Going to Fust, a citizen of Mainz, Germany, he obtained a sum of money for which he mortgaged his printing plant. This was in 1450. Five years later this mortgage was foreclosed, giving Fust all types, books, presses, etc., at that time owned by Gutenberg.

In 1455, among Gutenberg's workmen was a young man named Peter Schoeffer, who previously copied books while a student in the University of Paris, and when Fust took over the equipment forfeited by Gutenberg, Schoeffer assumed charge, married Fust's daughter and became a partner in the business. Hence the combining of their individual coats of arms.

The device on the right-hand shield is that of Schoeffer and that on the left of Fust. It has been shown that the "X" and inverted "V" are Greek letters; as to their significance nothing is known. Greek letters have each a numerical value: X (chi) 600, Λ (Lambda) 30. Doubtless these letters had some meaning to the initiated of this period. The stars denote seniority and are on many medieval coats of arms. The two shields hung on a branch denote alliance, possibly the alliance of Schoeffer with the Fust family tree on his marriage to Fust's daughter.

Leaflet, plain, beautiful and easy to read. The School of Printing, Boston, Mass.

The consideration of the size, appropriateness of style, and spacing of type; the relation of type to paper; marginal effects; the use of ornamental features as head and tail pieces, initial letters and borders; and the placing of illustrative forms, are fully discussed and illustrated. Practice in sketching layouts, designing decorative elements, and hand lettering, is continued thruout the course."

This venture has already been very successful. Advanced students, and journeymen printers in need of higher education in the art are taken as well as apprentices in printing. The class enjoys the advantage of the criticisms of prominent Philadelphia artist-printers such as Edward Stern, Lawrence Fell, of the Franklin Printing Company, and Byron W. Isfort, of the Curtis Publishing Company. The tuition is modest, as the class was not organized as a money-making proposition.

Some few months ago the writer was invited to give a series of lectures on correct forms of typography to the Philadelphia Juniors, an association of apprentices who are working in regular shops. There were about thirty-five of the boys, and arrangements were made to give them a "talk" one evening of each week in a small hall provided for the purpose. The results of these lectures have been gratifying, at least a dozen of the apprentices having bettered their positions thru following the instructions and

thus improving their work. It is a fact that the youths were literally thirsting for knowledge, and the majority of them attended the lectures faithfully. No doubt many persons interested in vocational training would be interested in a brief description of the system under which these addresses were delivered, so an explanation is offered in the following:

First, appropriate titles were selected for each lecture, such as for example, "The Importance of Simplicity in Advertising-Display," "Plain, But Beautiful Book Title Pages," "All Typography Should be Easy to Read," "Simple Things Which Make Art in Typography," "Correct Margins for the Fine Book Page," etc.

In addition to demonstrating typographical lay-outs on the blackboard, giving first the wrong examples, and then the correct form, "lesson cards" were also provided for the purpose of exhibiting many of the "fine points" in good type composition. First, cards containing specimens of incorrect typography were handed around among the apprentices, and they were requested to study the exhibits, and to try, if possible, to point out the various defects. Merely to give an idea as to the make-up of the lesson cards, here is a specimen giving an example of the wrong placing of an initial letter:

THERE'S something about Big Ben's get-up that brushes the sleep right out of your eyes. It's a wake-up that brings a cheerful smile as you tumble out of bed.

The boys were informed that the second, third, and fourth lines of the text matter should not have been indented as the initial letter T forms sufficient white space at its side without indentions being necessary. And, the initial having extended to only the third line of the text, the fourth line then should have been a full line, as in this example:

THERE'S something about Big Ben's get-up that brushes the sleep right out of your eyes. It's a wake-up that brings a cheerful smile as you tumble out of bed.

Just to prove, however, that it is possible to improve the appearance of this form further, the third and last lesson card shows where the initial T has been moved to the left so that its "stem" will line up vertically with the beginning of the text matter under it:

THERE'S something about Big Ben's *get-up* that brushes the sleep right out of your eyes. It's a *wake-up* that brings a cheerful smile as you tumble out of bed.

The students were told that in cases where there is plenty of white space on all sides of a piece of text matter containing an initial, the letters T, V, and W can be treated in the manner of the T as in the third example.

As sayings of great men are frequently used in display advertising, one set of the lesson cards were planned to demonstrate how the quotation marks should be correctly set. On the first card the wrong positioning of the quotation marks was shown, as:

"Would you live with ease, do what you ought, but not what you please"

Then, on the second card the right form for setting the quotation marks was given, as:

"Would you live with ease, do what you ought, but not what you please"

It was explained to the youths that in large display composition the quotations should extend into space on each side of the type lines, and that the type lines in such cases should be squared-up with one another, just as tho the quotations had not been used. It was also mentioned that on occasions a long aphorism, when used for a display heading in an advertisement, for instance, might have to be broken into three or even four lines, and that no matter how many lines were essential, to square them up like this:

"Could I Live My Life Over Again, and Choo se My Employment, it Would be That of a :: :: :: :: :: Printer"

Thomas

Upon other lesson cards the right way, and the wrong way, to set a business letterhead were demon-

strated. On still other cards lessons were given in the use of ornamental features, incorrect and correct margins for book pages, relationship of certain borders with certain type designs, the typography of plain but beautiful business cards, the construction of display advertising composition, the proper use of condensed type faces, the right use of extended type faces, the value of white space, etc.

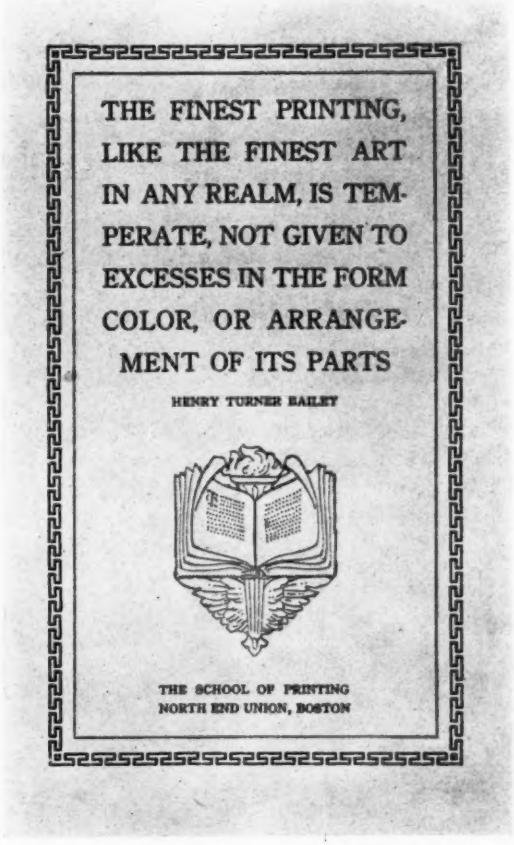
Altho many of the instruction cards were printed especially for the lecture course, others were made up by clipping good and bad examples of typography from books, newspapers, magazines, etc. Some of the cards were devoted to showing correct balance of illustrations in forms of type matter, correct color schemes, and relation of type faces to certain paper stock, etc.

On the blackboard lay-outs for larger forms of typography, such as window placards, big mailing folders, full-page advertisements for both newspapers and magazines, posters, and so forth, were sketched. The apprentices were advised to use decorative material in typography very sparingly; they were taught to believe in "the richness of simplicity," rather than in extreme ornamentation; they were shown how to make white space take the place of gimcracks in typography with better results.

Constant effort was made to teach the apprentices the aesthetical side of printing, and this with considerable success, for the boys soon took a deep interest in studying the "little things" that create real beauty in printed matter.

During this lecture course several competitions in typography (title pages, business literature, folders, etc.) were conducted, the boys setting the forms in their places of employment during spare time. These contests spurred the apprentices to accomplish some remarkable work, the originators of the winning specimens being rewarded with suitable gifts.

Where other methods of instruction are not available, owners of printing plants in every city should encourage the formation of organizations of apprentices such as the Philadelphia Juniors. Let the young men meet, say on one evening of each week, in a bright, cheerful classroom, and have an earnest, painstaking instructor teach them the *art* of printing. And, there is a message in this article for all of those in charge of vocational training schools. Give greater thought to *aesthetics*.


THE FINEST PRINTING, LIKE THE FINEST ART IN ANY REALM, IS TEMPERATE, NOT GIVEN TO EXCESSES IN THE FORM COLOR, OR ARRANGEMENT OF ITS PARTS
HENRY TURNER BAILEY
THE SCHOOL OF PRINTING
NORTH END UNION, BOSTON

An example of school printing from the School of Printing, North End Union, Boston, Mass.

WOOD FINISHING AND FINISHES

III—FILLERS AND FILLING.

J. M. Dorrans, Assistant for Industrial Education and State Supervisor of Manual Training, Madison, Wis.

FOR wood finishing purposes woods may be divided into two classes, close and open grained. Close grained woods are represented by the coniferous class, or non-porous woods as they are sometimes called, which have tracheids but no vessels. Open grained which are represented by the hard woods, have, on the contrary, vessels. In planing or finishing the surfaces of such woods these vessels are opened up. In all cases where, as in the oak and the ash, the vessels are large it is necessary to fill them. In some cases as; for example, with the maple or birch, the vessels are small and close together and filling is therefore not necessary.

Filler, as its name implies, is a substance used to fill or level up the hollows or vessels in wood. This filling is made necessary to avoid subsequent operations, such as the application of one or two extra coats of varnish and the sanding and treatment of these coats, operations expensive in time and cost. While it is true that filling could be dispensed with, it is cheaper, quicker and better to fill, and that is why it is done.

There are two kinds of filler, paste and liquid. By far the most important are the paste fillers. The paste fillers are sometimes made from plaster-of-Paris, china clay, whiting, marble dust, or a mixture of these, and silex. Of paste fillers silex undoubtedly makes the best, and no other material should be used in cabinet work. Silex in some form or other is common thruout the globe. It is found in various colors, but white is the form used for fillers. After being ground as fine as flour, it is washed or floated and dried. It is then ground in linseed oil with a drier and is ready for use.

The particular advantages of silex over other paste fillers lie in its hardness—it is third from the diamond—translucent, and non-absorbent qualities, and the fact that when it is ground into powder the fractures are ragged and sharp pointed. These points are pressed into the wood when the filler is being rubbed off and pack well together, making a hard, compact filling which is not affected by acids or time.

Paste fillers are not expensive, and it pays to get the best, i. e., silex. It is a good plan when filler is not being used in large quantities to purchase it in tins of about one or two pounds; altho the smaller tin in proportion costs a trifle more than the larger, the filler is in better condition and there is less waste from left-over filler drying out.

Thinning.

Paste filler when received from the manufacturer requires to be thinned down to suit the particular work on hand. For most work it should be about the consistency of varnish. Filler may be thinned down with benzine, naphtha, or turpentine. There is a great difference in the price of these oils, however, the turpentine costing much more than the benzine or naphtha. They do the work equally well and, except that the first two dry faster than the turpentine, there is really no difference in the results.

Paste fillers should be applied with a brush in the direction of the grain of the wood. When dry, which will be when the filler has assumed a grey, dry appearance, it should be rubbed off briskly across the grain of the wood. The operation of rubbing off presses or packs the filler into the wood and takes off the surplus filler.

For rubbing off paste filler various materials are used, such as waste, excelsior, tow, burlap and sea grass. Sea grass is a weed that grows on the bottom of the sea along the coast of Maine and New Foundland. After a storm tons of it may be washed up on the coast. It is cleaned and dried and makes a fair rubbing material. Burlap and tow are also good; excelsior is rather hard. Waste or soft cloths are good for rubbing after the other materials, to take out the cross marks. It is a good plan to do this second rubbing as it will make sanding, after filling, easier. If the filler should set too hard, the rubbing off may be made easier by brushing with a little solvent over the top of the filler.

Drying.

Paste filler should be allowed at least twenty-four hours to dry. When dry, the surface should be looked over to see if it has been properly filled. If it has not been, it is better to give it a second coat of filler, as a poor filling usually requires extra treatment. It is also well to have a picking stick (a piece of hard wood about 5 inches long with a chisel point at one end, a round point at the other) for cleaning the filler out of the corners.

The filler may sometimes cut the coat of some oil stains; in such cases it is advisable to give the stain a coat of shellac, white or orange, according to the color of the stain to act as a binder before applying the filler. It is important in this case that the shellac be thin. Successful filling depends on knowing the stain; this together with a little care and common sense will help considerably to get good filling. So much for paste fillers.

Liquid Fillers.

Liquid fillers, or surfacers as they are sometimes called, are usually cheap varnishes. They are not really fillers in the same sense as the paste filler, but go all over the surface. They are applied like varnish.

Being thick they form a heavy coat that can be sanded down a little without sanding thru the surface. The particular function of the liquid filler is to prevent absorption and to save a coat of varnish. This kind of filler is suitable for some work. It is very good for stopping the pores of the wood in places not exposed to view to prevent warping. Shellac varnish makes a good liquid filler, and binder. In this respect it is perhaps the equal of any material for this purpose.

Glue size is sometimes used as a liquid filler for toy furniture, and this is the only furniture it should ever be used for. Glue draws the dampness readily and should, therefore, never be used as an undercoating for varnish.

Staining and Filling in One Operation.

This method of treatment may sometimes be used to advantage in some classes of work, especially light shades of oak. The method of application and treatment is the same as in applying the ordinary filler. It has the advantage of a saving in time and the cost of the treatment of a surface by at least one operation, that of staining. It does not, however, give the same depth of color as the staining and filling, and is not usually employed where depth of color is demanded.

In preparing a combination stain and filler it is necessary to get the best pigment colors for mixing with the filler. Some of the domestic pigments are satisfactory; others again are not so desirable as the imported pigments that are almost entirely free from impurities.

Filler should be colored a shade darker than the stain in order to bring out the depth of color. In mixing the filler the black or darkest color should be added gradually until the desired shade is obtained.

Paste Fillers.

Natural—¼ pt. Japan drier
½ pt. Boiled linseed oil
2 lbs. Floated silex

Golden Oak—½ oz. Venetian red
1½ oz. Burnt umber
2 lbs. Paste filler

Brown Flemish—2 oz. Van Dyke brown
2 lbs. Paste filler

Black Flemish—1¼ oz. Drop black
2 lbs. Paste filler

Silver Grey—2 oz. White lead (or zinc white)
2 lbs. Paste filler

Walnut—2 oz. Burnt Turkish umber
2 lbs. Paste filler

Forest Green—2 oz. Chrome green
2 lbs. Paste filler

Mahogany (brown)—½ oz. Van Dyke brown
1½ oz. Burnt Italian sienna
2 lbs. Paste filler

Mahogany (light)—1½ oz. Burnt Italian sienna
2 lbs. Paste filler

Mahogany (dark)—1 oz. Burnt Italian sienna
½ oz. Rose pink
¼ oz. Drop black
2 lbs. Paste filler

SPECIFICATIONS FOR DULL MAHOGANY FINISH—BROWN—No. 3 D FINISH.

The No. 3 D Finish should be produced in a manner that will comply with the following requirements:

Requirements:

This finish shall consist of three coats of varnish applied to the stained and filled surface of the mahogany. The final coating of varnish to be rubbed so that it will produce a uniformly dull surface.

Appearance and Color:

The finish shall conform in appearance and color to the submitted and approved sample.

Procedure:

To produce this finish the following specified materials must be used and the operations performed as directed.

Operations:

1. *Stain:* Apply water stain with brush, full strength.
2. *Dry:* Allow six hours to dry.
3. *Sand:* Sand surface with No. 00 sandpaper.
4. *Dust:* Dust with brush duster.
5. *Stain:* Apply a second coat of stain reduced with water in one-half strength.
6. *Dry:* Allow six hours for stain to dry.
7. *Sand:* Sand surface with No. 00 sandpaper.
8. *Dust:* Dust with brush duster.
9. *Fill:* Apply filler with brush in the direction of the grain of the wood.
10. *Dry:* Allow filler to dry until flat and grey looking.
11. *Rub Filler:* Rub filler off *across* the grain with sea grass or burlap. Use picking stick for corners.
12. *Cleaning up:* Clean up with soft cloth.
13. *Dry:* Allow filler 24 hours to dry.
14. *Sand:* Sand with No. 00 or worn sandpaper.
15. *Dust:* Dust with brush duster.
16. *Shellac:* Apply coat of orange shellac.
17. *Sand:* Sand surface lightly with No. 00 or worn sandpaper.
18. *Dust:* Dust with soft brush duster.
19. *Varnish:* Apply a coat of X varnish with brush.
20. *Dry:* Allow 48 hours for work to dry. (May be dried in varnish kiln in seven hours).
    Note: All kiln-dried work must be allowed two hours to air harden.
21. *Rub:* Rub varnished surfaces with No. 0 pumice stone and water. Clean off.
22. *Dry:* Allow twelve hours to dry.
23. *Dust:* Dust with brush duster.
24. *Varnish:* Apply coat of XX varnish with brush.
25. *Dry:* Allow 48 hours to dry. (If kiln dried, seven hours.)
    Note: All kiln-dried work to be allowed two hours to air harden.
26. *Rub:* Rub varnished surfaces with rubbing oil and felt and No. 0 pumice stone to a smooth surface. Use stiff brush in moldings.
27. *Clean:* Clean off with sawdust; then clean and polish with soft cloth.

Formulae for Stain: The water stain must be made from standard solution and in the following proportions:

65 parts Crocein orange
8 parts Wool red
22 parts Nigrosine
5 parts Carbonate of soda

Fillers: The filler must consist of the following ingredients:

½ oz. Van Dyke brown
1½ oz. Burnt Italian sienna
1½ pts. Benzine
2 lbs. Silex paste filler

Preparing Filler: In preparing the filler the benzine must be added gradually to the Van Dyke brown. The Burnt Italian sienna and paste filler must then be added and the whole thoroly mixed until a uniform thickness similar to varnish is obtained.

ART METAL WORK

Douglas Donaldson, Head Art Department, Manual Arts High School, Los Angeles, Cal.

IN writing about Art Metal Work, I wish to address myself not so much to the little folks just starting to saw out paper knives and the like, but rather by means of pictures and a few words to the more or less wise, to send out a message from my work shop that might add a little to the ever increasing joys of the craftsman who has passed thru the beginning stages and is looking for new fields of adventure and technical experiment. So much has been written on how to saw, solder and shape things that printer's ink would be wasted in that direction.

Metal, when we think of its association with enamel, has a wonderful range of possibilities. It may have the brilliance in color of fresh pigments, the texture of old leather or of glossy porcelain. It lends itself to modeling better in some ways than clay itself. Color, texture and form then are at our command if we but master the processes that place self-expression within our grasp.

It is doubtful, to my mind, if anyone should work in metal until they have had some training in design. The conception of beautiful ideas must lead the way—the technical processes simply being the words which compose the language of art. Work that smacks of technical smartness but lacks appeal to our artistic sense of color and form is not art however amazing it may be. Modeling metal into the form of roses, faithfully representing them as they grow with their petals curling up in a miraculous manner, is often done by skillful workmen. This photographic representation of natural forms may never in itself be considered art. Rodin has said, "The reign of skill is the ruin of art." Realism may be indulged in if the primary considerations are matters of composition, form, color and texture.

No. 1—Picture Enamel by the Author.

No. 2—Picture Enamel by the Author.

With the thought uppermost in our minds that technique is never an end in itself but merely a means to the end sought, we will consider the objects represented here from a technical point of view. I feel that I must say in defense of the objects that their color, perhaps their greatest charm, is missing.

Consider first the two enamel pictures in frames. Twenty-six guage copper B. & S. was used for the enamel plaques. The design is traced on the back of the metal and the line which acts as a cloison for the enamel is raised from the back with repoussé tools in pitch. Note the textures in the basket and some of the other forms caused by raising up with various shaped tools. The dotted lines are made by using a round pointed tool in the chased lines. After raising from the back the work is put in the pitch face up and the forms are refined in shape and some of the surfaces are worked with repoussé tools to make their texture more interesting. The frames are made of 24-gauge metal and done in repoussé in much the same manner as the enamel plaques. Their edges are turned back about one-eighth of an inch

No. 3—Teapot by Edna Chess, Vase by Caspar Wermuth, and Plate by the author.

and burnished down over a pan-shaped back. The pan is about the depth of the recess in the frame. The frames being very thin are reinforced with a thick coating of tin on the back to add stiffness and weight.

The enamel plaques, the larger one about four by five inches, were fired with an ordinary foot bellows and blow pipe. A backing enamel is fired on before the front is started. The intricacies of color are a little too complicated for notes of this brief nature. It might be well to say, however, that the best results are usually obtained by using backgrounds of black or neutral color and small spots of more brilliant color. The gem-like quality of the bright enamels should be enhanced.

In the group showing plate, teapot, and tall vase the plate is decorated with small enamel bosses on the border and a larger one in the center made in the same manner as the pictures. It is made in a separate piece and set in a bezel surrounded in turn by a twisted wire. About the wire is a circle of bumps pushed up from the back. The border bosses are also set in bezels and the border pattern is bumped up from the back in pitch. The edge of the plate is bent double to give a thick edge. Twenty-gauge copper was used.

The teapot was raised in one piece eighteen-gauge; the spout rather triangular in shape is made of two pieces. The lower one is bent V-shape and the upper is bent over the edges. The handle was swaged out of a quarter-inch rod and set with rivets that permit it to turn at the joints. The knob is a red lacquer bead held in place with an ornamental rivet.

The upper part of the tall vase was made with the regular lap brazed joint. The vase was raised bowl-like, inverted and the bottom cut out and soldered to the top piece.

In the group showing the candelabrum and copper panel in repoussé both objects are interesting problems. The panel was made by Rudolph Schaeffer in one of the Munich art schools. It is done in 20-gauge metal. The background spots are sawed out and a rich textile placed behind it. It is mounted in a wooden frame.

A candelabrum of this sort is a difficult problem. Much care must be taken to get the parts in perfect balance. The arms are made of $\frac{1}{4}''$ stock twisted. The arms are soldered to washer-shaped discs of $\frac{1}{4}''$ thick metal that fit down over a $\frac{1}{4}''$ rod that goes up thru the center to act as an axis. The center candle cup screws down on the end of the center rod and tightens the arms. The sections of the center piece are soldered each one to the disc below it.

No. 4—Textile decoration and copper panel by Rudolph Schaeffer. Candelabrum by Alice Casevill.

PRIMARY CONSTRUCTION

Edward F. Worst, Director of Elementary Manual Training and Construction Work, Chicago

DECEMBER.

Construction Work for First Grade.

DURING the past three months the work done along constructive lines has been largely related to schoolroom administration and academic work.

Some time during the year every child should make something to go into the home. December is the most appropriate time to consider home problems. The problems chosen should be practical and of such a nature that the mother or father may make use of whatever it may be.

The following suggestion will aid the teacher in selecting suitable gifts for the children to make.

The spirit of helping and giving, rather than receiving, should be fostered. The value of the work, rather than the material, should be emphasized.

Cutting and Tearing.

Appropriate to the month—Fir trees, fireplace, stockings, sleds, chimney, etc. Make cuttings to show what they wish to make for different members of the family and their playmates.

Make an appropriate Christmas poster, following the suggestion given for the Thanksgiving poster.

Clay Modeling.

Suggestions given for cutting and tearing may be used in three dimensions in the clay.

Discourage the sticking on of pieces.

Work in the round drawing the several parts from the original piece of clay.

Christmas Tree Decorations.

Purpose:

To make children happy in doing for others.

To acquire, incidentally, skill in handling materials, number and construction.

Popcorn Basket.

Fig. 1 shows a popcorn basket, the folding of which is the same as that for the pyramid used in the November outline.

The inner creases of the folding form a square with a point on each edge resembling a four-pointed star. Between each pair of points there are two triangles. Fold these triangles one over the other until short edges reach the creases which outline the points. Paste and add handle.

Three-Sided Basket With Point on Each Side.

To make the basket shown in Fig. 2, fold a 4″, 6″, or 8″ square of tinted construction paper into 16 small squares, as shown in Fig. 2.

Fold points 1, 2, 3 and 4 to center "a" and crease well. This forms four triangles. Cut away triangle two, and along one side of the triangle formed by cutting away two.

Slip this free-edged triangle under the one next to it, and paste. This forms the triangular basket with a point on each side, as shown in Fig. 3.

Three-Sided Basket With Two Points on Each Side.

To make Fig. 4, fold square as shown in Fig. 2. Cut and paste as shown in Fig. 3. Cut away square from each triangle that hangs over sides. This forms the two points as shown in Fig. 4 in place of one shown in Fig. 3.

Lanterns.

Lanterns of various colors and sizes, such as were made in October, make very interesting Christmas tree decorations.

Wall Pocket.

A gift for the home, Fig. 5. Fold diagonals of a 9″ square. Fold three corners of square to center. With paper punch make holes as shown in Fig. 5. With candle wicking, narrow ribbon, raffia, carpet warp or jute, lace as shown in Fig. 5.

Letter Case.

Fold diagonals of 9″ square.

Fold corners of square to the center. Unfold one corner and cut along crease. Unfold next corner and cut along crease. Punch edges of the other two and lace, as shown in Fig. 6.

Picture Frame.

Fold 9″ square as suggested in Fig. 6. After folding the corners to the center turn the form over, plain side up. Fold each corner to the center. Turn the form over. Fold each corner at the center back, so that they lie on the corners of the square, Fig. 7. Add a small Christmas picture or a calendar pad.

Cake Basket for Christmas Tree.

Fold picture frame Fig. 7.

Turn the form over. Here we have four corners which meet at the center. Fold each corner back to the middle of the edges opposite. Fig. 8. Turn the form over. Add handle by inserting the ends into two opposite corner pockets and paste (Fig. 9).

Christmas Tree Ornament.

Fold a 6″ square into a picture frame without turning the corners at center back.

There are now four corners meeting at the center. Slip the little finger deep into one pocket, the third finger into the next, the first finger into the next, and the thumb into the last.

In doing this it will be found that the corners have a tendency to bend downward. Fold them down by bringing the fingers together until the four corners come together at one point. Upon removing the fingers the corners will naturally spread a little and the ornament will stand on four points. Add handle with which the ornament may be hung (Fig. 10).

Book Mark.

Fold a rectangular piece of tinted construction paper 4″x2″ as follows:

Bring one short edge over until it meets or coincides with half of the front edge. Bring the other short edge over until it coincides with the other half of the front edge. Punch edges and lace as shown in Fig. 11.

Hair Receiver.

Fold one diagonal of a 9″ square of tinted construction paper. Place square so diagonal is vertical. This brings one point of square directly to the front. Fig. 12. Fold two edges, one at each side of diagonal, in to meet diagonal, this gives a kite form (Fig. 13). Unfold and we have Fig. 14. Bring 1 and 2 to the back allowing one to overlap the other. Turn point at top downward to outside (Fig. 15).

A woven square of contrasting colors or tints of the same color folds into a very interesting hair receiver. In this case the point at top is folded to inside of receiver.

Candy Box.

Of two 9″ squares of green paper, fold box and cover as directed in previous months. To close the box use red strips of paper ¼″ wide.

Closed Candy Box.

Fold paper by two opposite corners. Fold right and left corners together; upper and lower. Unfold.

Fold each of the four corners to the center. Unfold. Fold upper corner to middle of first crease. Unfold.

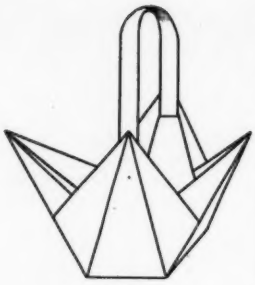


Fig. 1

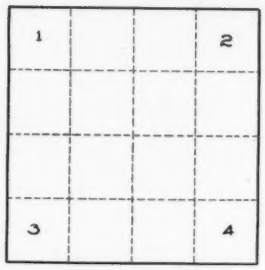


Fig. 2

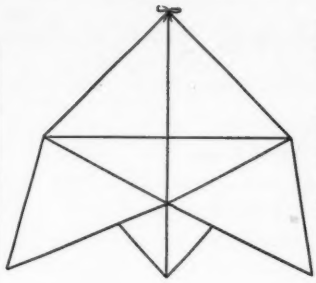


Fig. 3

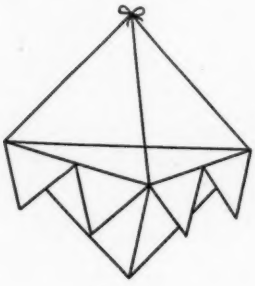


Fig. 4

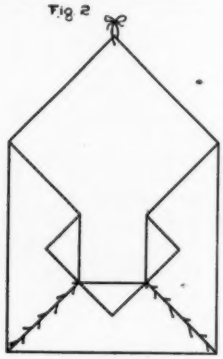


Fig. 5

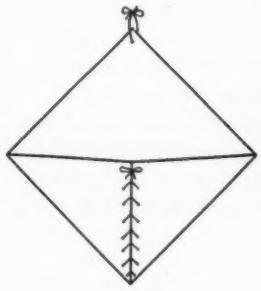


Fig. 6

FIRST GRADE.

Fold upper corner to middle of lowest crease. Unfold.

Fold right, left, and lower corners in the same manner.

Find upper corner. Find second triangle from upper corner on right side (a). Cut it away. Find third triangle (b). Cut it away. Cut away corresponding triangles (c, d) on the left side.

Beginning at the lower corner, repeat above. Fig. 16.

Find two triangles at upper corner (e, f). Find lower edge of right-hand triangle (f). With scissors make hole in middle of this edge; in middle of lower edge of left-hand triangle (e).

Cut from one hole into the other.

Find two triangles at lower corner.

Find upper edge of right triangle (h).

Make hole in middle of upper edge.

Cut from right end of upper edge to hole. Fold corner thus made to left end of upper edge of right triangle.

Cut and fold left triangle (g) to correspond.

Make right corner of entire square correspond with upper corner. Make left correspond with lower corner.

Pass lower corner thru slit in upper corner and unfold.

Pass left corner thru slit in right corner and unfold. Fig. 17.

Shaving Pad.

This makes a very practical gift for the father. It consists of 25 four-inch squares of tissue paper punched in the two upper corners. A 4″ square of tinted construction paper is placed at the top and bottom. All are tied at the corners with a piece of macrame twine, which serves as a hanger as well as keeping the sheets together.

Christmas decoration may be added to the outside cover.

Calendars.

A great variety of interesting calendars may be made by bringing different sizes of rectangular pieces of tinted construction paper together, in such a way that the edges of one color extend just beyond the edge of the one above. These may be tints of the same color, or they may be of harmonious contrasting color. This makes a mount on which may be placed an appropriate picture or a cutting, as shown in Figs. 18 and 19.

Figure 18 is made of holly green and red construction paper. Any other colors may be chosen. The larger rectangle is of red. The smaller of green. The freehand cutting of the pine tree is of green.

This cutting is placed on a piece of red. The red is then cut, following the outline of the green, only that the red is cut so its extends about $\frac{1}{4}$ of an inch beyond the green. In placing the calendar, cut a rectangular piece of red large enough to extend about $\frac{1}{8}$″ beyond the calendar. For first grade pupils the parts should be cut by the teacher, the pupils to assemble the parts.

Envelope for Calendar.

Make a simple folding for the envelope. It will not be necessary to close the sides. Fig. 20 shows a simple folding. A Christmas sticker or two adds greatly to its decoration.

Darning Cotton Case.

This makes an interesting gift for the mother. It consists of three thread winders, a needle, one spool of darning cotton, and a box to hold them. To construct the thread winders, proceed as follows:

First, fold pattern for thread winder. Pass to each child a 3″ square of paper. Fold into 16 small squares. Place the folded square on the desk, as shown in Fig. 21. Fold the corner (a) so it meets the corner (b). In this way fold each outside corner of the square so it meets the corner of the square opposite. When this is done, we have Fig 22. Cut away the triangles as indicated by the continuous lines.

This pattern may now be placed on squares of bogus bristol board and traced. Make three.

In purchasing cotton for the room, get black, white and brown.

Each pupil averages one spool, using one-third of a spool on each winder.

Such an arrangement makes it possible for each child to have one-third of a spool of each color.

To Wind the Cotton:

Let each child have a spool of cotton regardless of color. Wind the cotton six times around each point of the winder and six times each way across the center. See Fig. 23. Repeat this five times and one-third of a spool of cotton is used. Have the pupils exchange colors and with a second thread winder proceed to wind as in the first. In this way each child gets a spool of cotton, but in three colors.

To Make the Box:

Pass to each child two $7\frac{1}{2}$″ squares of construction paper. Instead of folding in the construction of this box, have the pupils use the ruler as a straight edge. Place the ruler along one outside edge and draw a line as far from the edge as the ruler is wide. Move the ruler so one edge of it coincides with the line just drawn.

(The ruler should not be more than one inch wide).

Repeat this for the remaining three sides. (Fig. 24.) The sides of the box are to be double. Crease on the inside lines and cut as indicated by continuous line. Proceed to finish box as suggested in former lessons.

Before ruling for the box, cut away a strip of about $\frac{1}{8}$″ from two of the sides. The square for cover is left the full $7\frac{1}{2}$ inches. This difference will make it possible to easily remove the cover.

Add a fine darning needle and the gift is completed, the cost not exceeding five cents.

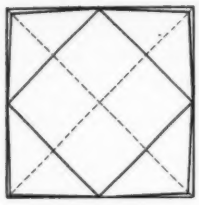


Fig 7

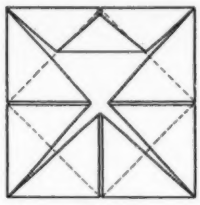


Fig 8

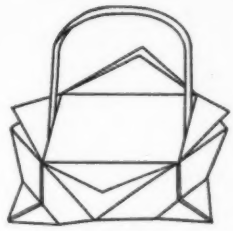


Fig 9

Fig 11

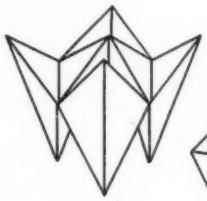
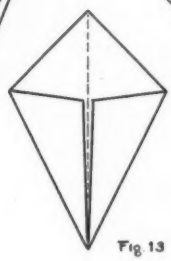


Fig 10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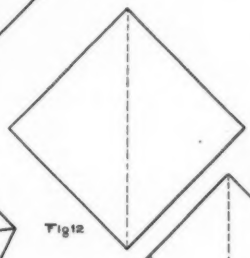
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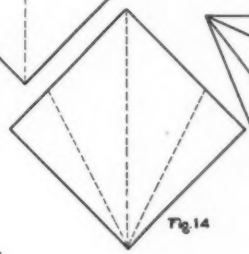


Fig 14

Fig 15

FIRST GRADE.

Another Interesting Basket.

Fold and cut a 5, 6, 7, 8 or 9-inch square the same as when getting pattern for thread winder. Fold and tie points upward. Turn triangles at top outward. (Fig. 25).

Story Book.

Purpose:

To review the vocabulary of the primer.

To interest the pupils in the construction of a story book.

To review simple book construction.

To give the pupils exercise in arrangement.

Material:

5 sheets of manila drawing, unruled language or tinted construction paper 9″x12″.

1 sheet of a dark color of construction paper for cover.

1 sheet of eighteen short stories.

1 sheet of eighteen pictures.

Carpet warp, macrame cord, jute or candle wicking with which to tie the sheets together.

Presentation:

This problem makes a most interesting exercise. If the teacher wil first construct the book, arrange and paste the pictures and short stories, it will do much toward enthusing the children to make their books as well as the one made by the teacher. It will take some time to complete the book, as there are to be eighteen pictures and a story for each. Place one picture and the story on a page.

Cut the several sentences into separate sentences, or if drill is needed in the arrangement of words, cut each sentence into words, permitting the children to again group the words into sentences.

Do not hurry the work.

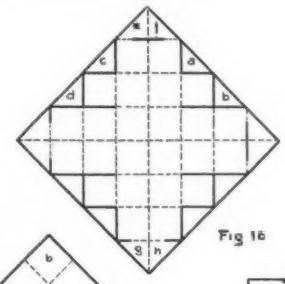
If necessary, let this problem carry over for the month of January.

To Make the Book:

Fold each 9″x12″ piece of paper into halves by bringing the short edges together.

Place one within the other, placing the construction paper for cover on the outside.

With a coarse darning needle, force two holes on crease down the center, one two inches from the top of book and the other two inches from the bottom. With the needle threaded with a piece of twine, bring it thru the hole at the bottom from the outside, leaving an end of about six inches. Bring the needle thru the hole near the top to the outside. With the two ends at the outside, tie a hard knot and then a bow knot.



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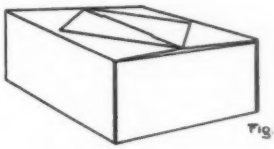
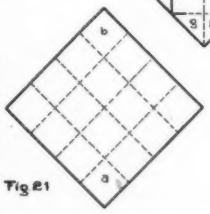


Fig 17

Fig 18



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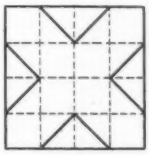
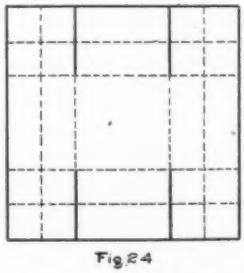


Fig 22

Fig 20

Fig 19

Fig 23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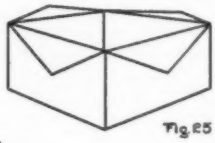


Fig 25

FIRST GRADE.

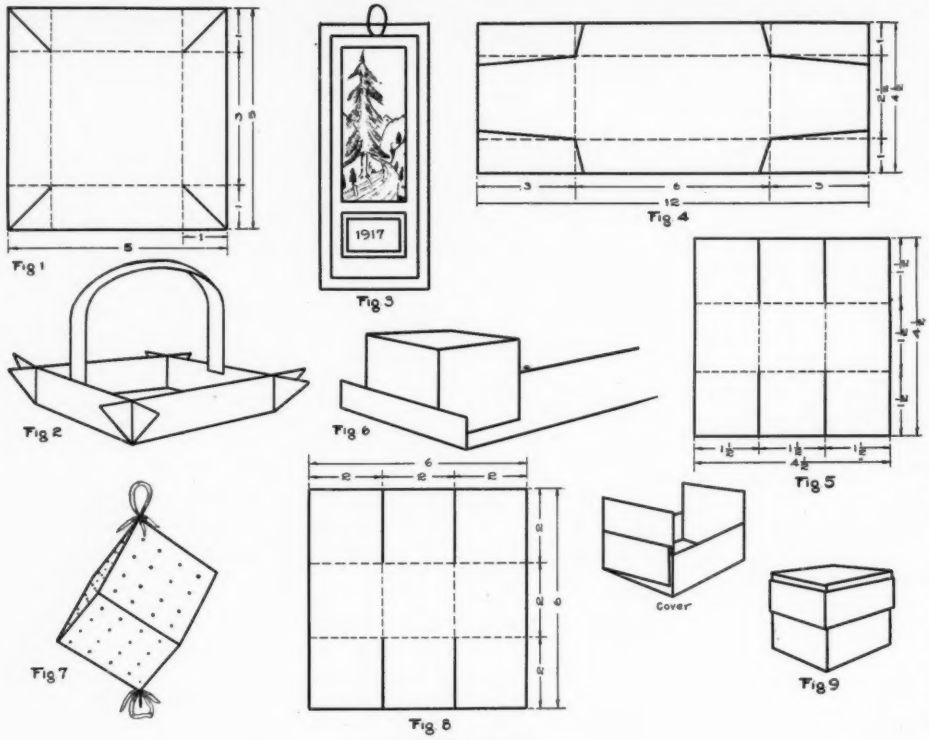


Fig 1 Fig 2 Fig 3 Fig 4 Fig 5 Fig 6 Fig 7 Fig 8 Fig 9

SECOND GRADE.

Material for this little book may be purchased at a small expense, or it may be prepared by the teacher, using the hektograph.

DECEMBER.

Construction Work for Second Grade.

Cutting and Tearing.

This month is rich in opportunities for cutting and tearing. Have pupils show, by cutting, the gifts they expect to give to various members of the family and friends.

Have all unite in the making of one general Christmas poster for the room. Use paper for background as suggested for November.

Christmas Tree Decoration.

Purpose:

To create a Christmas spirit.

To give pupils pleasure.

To do for others, encouraging the spirit of giving rather than receiving.

Material:

Construction paper—odds and ends left from various exercises.

Much of the first grade work may be duplicated. In many cases the exercise may be shown to the class, allowing them to proceed with the construction of same without direction from the teacher.

Christmas Basket.

Material:

Tinted construction paper.

Candle wicking, macrame cord, carpet warp or jute to tie the corners.

Presentation:

Show the class a completed basket. Have pupils suggest various uses for same.

Place on the blackboard a pattern drawing as shown in Fig. 1, and have pupils read from the drawing directions for constructing the basket. Cut the handle 7 inches long, and about $\frac{3}{8}$" wide. The width may be made $\frac{1}{2}$ inch, then cut, freehand, to about $\frac{3}{8}$ inch. Fig. 2 shows finished basket.

Other Baskets.

Pass to the pupils any scraps of paper that may have been left after other constructions, and have them make original baskets.

Calendar.

Read what first grade outline suggests on calendars.

Children have always constructed calendars in school, and probably always will, as a calendar has a place in every home. For this reason it makes an excellent problem for the school room.

The calendar gives opportunity for simple drawing or cutting.

The calendar pads may be purchased for about thirty cents a hundred. It is just possible that the school has a fund from which this amount might be taken.

Material for One Second Grade:

2 pks. 6"x9" tinted construction paper. Each pack to be of different tint.

Calendar pads.

Presentation:

The construction of the calendar should mean more than just the assembling of parts. Fig. 3 shows the assembled parts, which were cut by using the following dimensions:

Largest rectangle, 6"x2½".

Medium rectangle, 5½"x2".

Smallest rectangle, on which drawing appears, 1½"x3½".

In pasting these various rectangles, apply the paste to only the upper edge of each rectangle.

Before placing any of the rectangles, paste the loop (the hanger) at top of largest rectangle.

Envelope.

Fig. 4 gives pattern drawing for calendar folder.

Pin Case.

Purpose:

To make a practical gift for the mother.

To derive from a gift practical number and skill which shows in a neatly and well finished piece of work.

Material:

Two 4½" squares of light weight bristol board. Construction paper will do if the board cannot be had.

Pins for the case.

½ yd. narrow ribbon, twine, candle wicking, macrame cord, jute, or carpet warp.

1 darning needle.

A small all-over designed paper, or cover paper.

Presentation:

The pin case will find a place in every home. It, therefore, is a practical problem. Homes of rich and poor use pins.

Show the pupils a finished pin holder. (Fig. 7.) In this one the cube, as a foundation, will be recognized. This is a season of the year when all children are enthusiastic over making gifts. Discuss the problem.

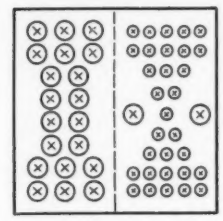


Fig. 10

Fig. 11

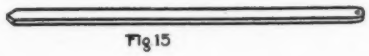
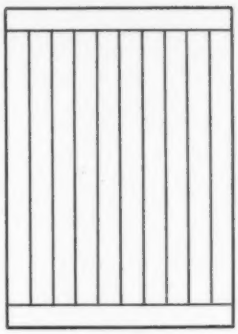


Fig. 15

Fig. 12



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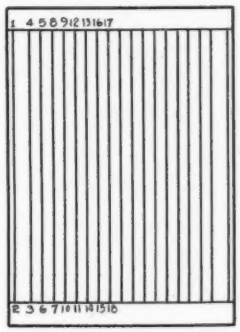

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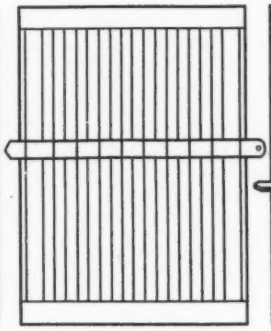

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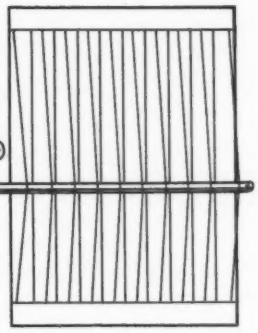


Fig. 17

SECOND GRADE.

What does the cube measure on each edge?

How would you begin to construct a cube for this purpose?

Let some pupil step to the board and make a free-hand drawing of the pattern.

To Construct the Cube:

Pass to each pupil a $4\frac{1}{2}''$ square of bristol board. Place dots on the edges $1\frac{1}{2}''$ from each corner. Connect corresponding dots by straight lines. Cut on continuous lines as shown in Fig. 5.

Rule and cut a second square in the same way.

Without pasting, fold one square into cubical box. Allow the second square to fold around the first one; or, in other words, let one fit into the other, and paste. This makes the foundation.

To Cover the Cube:

The cube measures $1\frac{1}{2}''$ on each face.

How long must a strip of paper be to cover four of the faces, allowing $\frac{1}{2}$ inch for overlapping?

How wide must the strip be if $\frac{1}{2}$ inch is allowed on each side for pasting?

The strip should be $6\frac{1}{2}''$ long and $2\frac{1}{2}''$ wide.

Apply paste to the strip and place around four sides of cube, allowing $\frac{1}{4}''$ to project on each side. (Fig. 6.)

Cut from edge of covering at corners of cube to edge of cube, and allow the half inch to paste to surfaces of cube not yet covered.

To cover the remaining two surfaces, cut two $1\frac{1}{2}''$ squares. From two edges of the $1\frac{1}{2}''$ squares cut free-hand a strip about $\frac{1}{4}''$ wide. There still remains a square measuring $1\frac{1}{2}''$. Apply paste and place squares on uncovered surfaces of cube.

When thoroly dry, with the use of a coarse darning needle, run a narrow ribbon or cord diagonally thru the cube. Tie a bow at one corner and a hanger at the other, as shown in Fig. 7. For about three cents enough black-headed and white-headed pins may be had to stick into the cube. They are put into four surfaces only.

Box for Pin Holder.

Every gift should be neatly and carefully placed into a box or package.

Two 6″ squares of tinted construction paper are required to make the box. From the square for the box, cut away a narrow strip from each of two sides.

Measure two inches on each edge from corners, and connect corresponding dots by straight lines. Cut as indicated by continuous lines. (Fig. 8).

To make the cover, the 6″ square is left full size. Measure and cut as in box. The sides of the cover are to be double. Instead of folding the edge of sides to the inside, as in the construction of former box covers, it is folded to the outside.

Instead of folding over the end pieces, cut away surplus. Small bands of red paper may be pasted around the box. A Christmas sticker may be used where the bands of paper cross. This exercise, when carefully done, makes a very attractive gift. Fig. 9 shows finished box.

Button Book.

This makes a very interesting and practical gift to go into the home. Where there are several children, no gift could be more acceptable coming from a second-grade child, than the button book. The actual cost amounts to about five cents.

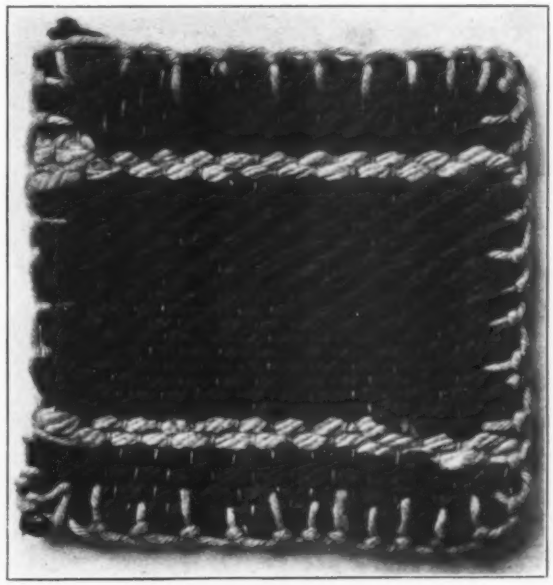


FIG. 18. SECOND GRADE.

Material:

Two 4½″ squares of construction paper.
Buttons of various kinds and sizes.
Needle and thread. Paste.

Presentation:

Fold the 4½″ squares into halves. On the outside of the folding, mark the places the buttons are to be sewed. (Fig. 10.) This affords a good opportunity for arrangement. The distance between the buttons depends on the size. Sew on the buttons. The buttons on each half may be sewed on with one threading of the needle. All the stitches are on the under side of the sheet. Apply paste to the second 4½″ square.

Place the square on which the buttons have been sewed, the stitched side down, on the pasted square. Press well. This covers all the stitches and makes it possible to remove any one of the buttons without interfering with the next. The card is folded into book shape.

About the middle of the long edges, on each side, and ½″ from outer edge, punch a hole. Into this hole insert and tie a narrow piece of ribbon or twine with which the two halves may be tied in book form. (Fig. 11).

Weaving: Iron, Poker, or Kettle Holder.

This is a problem which, when finished, is to go into the home. Great care should be used in constructing it as carefully as possible.

Purpose:

To aid in bringing about a closer relation between the home and the school.

To aid in giving pupils an appreciation for good color combinations.

To aid in teaching pupils to respect labor, and an appreciation for hand-made articles.

To familiarize the pupils with the terms warp and woof.

To create within the child a desire to do for someone else.

To continue a line of drawing, leads to the mechanical drawing and the practical number work involved, leading to formal number.

Material:

A piece of strawboard 5″ wide and 7″ long. This may be cut from a strawboard box, or any stiff scrap paper

A wooden needle is better and might be made by the boys of the 5th grade.

Presentation:

It would be a most excellent plan to give to each pupil a piece of very coarse material—say, burlap—and have them draw out some of the threads. Lead them to see that part of the threads run one way and part another. Introduce the terms "warp" and "woof."

While the pupils are threading their looms, use the above terms.

There are very few pupils who need to be urged to make something for the home. Show to the pupils a finished holder.

To construct the cardboard loom, proceed as follows:

Place the rectangular piece of strawboard so the short edges are parallel with the front edge of the desk.

Draw lines one-half inch from front and back edges. (Fig. 12.) Along these lines place dots ½″ apart, and connect corresponding dots by straight lines. (Fig. 13.)

We wish the warp threads to be ¼″ apart, but since the pupils of this grade measure only in half inches, the division in quarters must be done approximately.

Between the lines just drawn, and on the front and back edges, place dots dividing the half-inch spaces, so we have quarters. Connect the corresponding dots by straight lines. (Fig. 14.)

It will be observed that in the first and last half inch, the division is not exactly in the center, but that the dots are placed approximately ¼″ from the edges. This is done to avoid too long a space in weaving around the edges.

To thread the loom, first number the lines as shown in Fig. 14. Puncture with the darning needle a hole thru each point where the vertical lines representing the warp threads meet the horizontal lines.

With a fairly long piece of carpet warp threaded in the darning needle, come up thru the hole marked 1, leaving an end. Next, down thru 2, back to the under side of 1. With the end left, and the thread in the needle, tie a hard knot close to 1. Come up thru 4 and down thru 3 and back to 4. Come up thru 4 and cross over to 5. Down 5 and up thru 6 and back to 5. Down 5 a second time and over to 8. Come up 8, down to 7. Continue in this way until the loom is threaded on both sides.

Caution: Do not draw the warp threads too tightly in threading the loom, as allowance must be made for the passing over and under the woof.

Begin to weave about the middle of one side, weaving around edges until once around. Here it will be observed that if the weaving is continued, the thread (the woof) passes over and under the same warp threads as in the first time around. This is due to the fact that there is an even number of warp threads. To prevent this passing under and over the same warp threads, we must do as the Indians do, and that is, to let the weaver pass under (never over) two warp threads, and then continue under one and over one until around. At this point it is found necessary to pass the weaver (the woof) under the warp threads again.

In this way the weaving is continued until the top is reached. The passing under of two threads may be avoided by introducing an extra warp thread, thus making an uneven number of threads, which is absolutely necessary in continuous weaving. This extra thread may be put in between any two threads, but only on one side.

When introducing new threads, allow the ends to overlap and continue as before.

Another interesting problem to make in light woodwork, to help out in the primary weaving is that of a small ruler about 8 inches long and ½ inch wide, pointed at one end, as shown in Fig. 15. This rule may be woven over and under the warp threads, as shown in Fig. 16. When woven in flat, turn on edge so that it raises the threads, as shown in Fig. 17. The weaver (woof) may now be passed under the raised threads, and pushed down in place. The ruler may now be passed under a series of other threads, and the weaver again passed under.

When finished, break the cardboard along holes, and remove that part of the card between the layer of weaving.

The opening at top and bottom of weaving may now be closed by sewing over and over.

For this, use the needles that were used in the third grade in sewing the word book.

The holder is now completed. (Fig. 18.)

DECEMBER.

Construction Work for Third Grade.

Pin Case.

Purpose:

To give pupils experience in handling a new material.

To give opportunity for design and experience in transferring design from checked paper to the cross stitch canvas.

To make a practical gift to go into the home.

Material:

1 piece of canvas 7″x4½″.
1 cross stitch needle, Saxonia or D. M. C. No. 5.
2 pieces of light weight strawboard 3″x4″.

Presentation:

Present to the class a finished pin case. (Fig. 1.) After a class discussion as to its use, materials, and combination of colors, allow the pupils to begin to design. To introduce the work, it might be well to have the pupils copy a few simple designs from the blackboard. Fig. 2 shows a few designs.

Divide the canvas into two rectangles each 3½″x4½″.

It will be necessary to plan carefully.

The squares on the paper should correspond in number with the squares on the canvas.

Copy the design from the paper to the canvas in D. M. C.

When the cross stitch work is completed, the two pieces of canvas are pasted over the strawboard. The pasting is done around the edges only and only on the quarter-inch, which turns over to the under side of the board.

Material:

A 6″ square of any kind of strawboard, jute board, cloth board, or heavy bristol. Discarded strawboard boxes answer the purpose very well.

Raffia, natural or colored.

Carpet warp.

Darning needles, or any kind of heavy needle with a large enough eye to admit carpet warp or a strand of raffia.

When both boards are covered, the two are placed together and held together by an over and over stitch, using thread the same color of the canvas.

A hanger may be made by braiding three strands of the thread used in the design. (Fig. 1.)

Each gift should be attractively done up in paper or box.

Box to Hold Pin Case.

Material:

2 pieces of paper, one 5¼″x6¼″, to be used for the box, and the other 5½″x6½″ to be used for the cover.

The box when finished measures 3¼″x4¼″ and ½″ deep, the sides being double.

The cover measures a trifle more.

The box is constructed the same as those suggested in previous exercises. (See Fig. 3 for pattern drawing.)

Needle Book.

Purpose:

To interest the pupils in a home problem.

To give practical experience in constructing a problem involving the use of the cross and blanket stitches.

To aid in cultivating good taste in the combination of colors.

Material:

Cross stitch canvas, cut 6″x4″.

Cross-stitch needles.

Saxonia or D. M. C.

Outing flannel, cut 5¼″x3½″.

Presentation:

Show the pupils a few good pieces of work done in cross-stitch. Place on the board several very simple cross-stitch designs, and have the pupils copy on checked paper. After they have the idea, permit them to make simple designs. Choose either what the pupils did or what was copied from the board, and have the design copied from the paper to the canvas in saxonia.

It will be necessary to plan carefully. The squares on the paper should correspond in number with the squares on the canvas.

The outing flannel is used for leaves into which the needles are placed. These leaves are cut one-half inch shorter and one-half inch narrower than the outside cover of canvas.

The cross-stitch cover and the inner leaves of outing flannel are tied together with a piece of saxonia the same as when making a pamphlet of paper.

Fig. 2 shows a few simple cross-stitch designs.

Fig. 4 shows a finished needle book.

Box.

Construct box for needle book, as suggested for pin case, making it of the desired dimensions. (Fig. 3.)

Woven Work Bag.

Draw and cut from light weight strawboard an oblong 8″ long and 7″ wide. String the loom as shown in Fig. 5, with 16 strands of raffia, placing them around the oblong and tying them along the upper 8″ edge. (Fig. 5.)

Begin the weaving, from right to left, close to the lower 8″ edge. When introducing a new strand, weave the new strand along with end of the old strand for two or three inches. As there is an even number of strands in the warp threads, the weaver must be passed under two strands of the warp at the beginning of each round of the weaver.

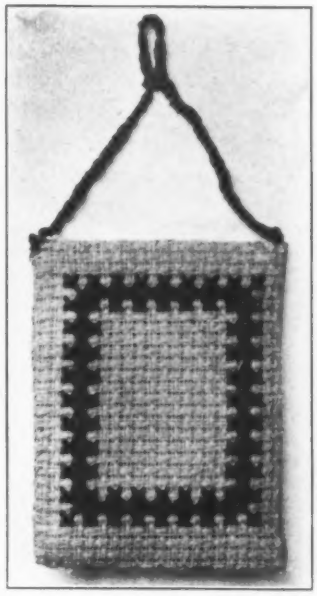


FIG. 1. THIRD GRADE.

Weave close to the upper edge.

Untie the strands along the upper edge, hold the bag open, and knot the strands together, tying one to the next strand on the right, in a hard knot.

The edge may be finished with a flat braid, sewed over and over, or with a button hole stitch.

Use two braided handles.

Fig. 6 shows finished bag.

Circle Maker.

If the class has never used a circle maker, have one constructed at this time. Strips of a light weight strawboard

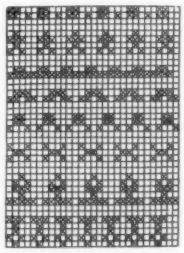


Fig 2

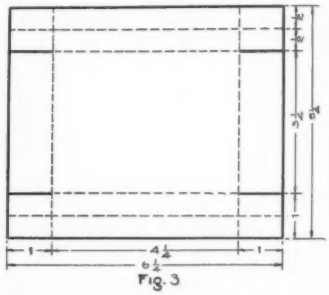
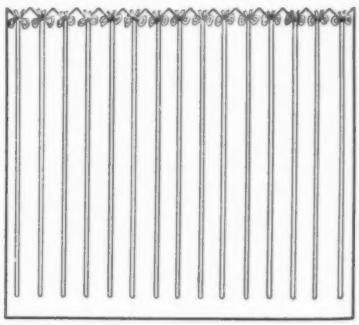


Fig. 3



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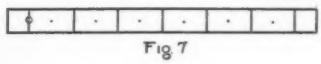

Fig 7

Fig 6

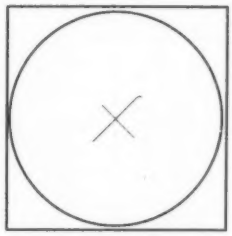

Fig 8

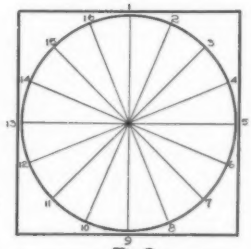

Fig 9

THIRD GRADE.

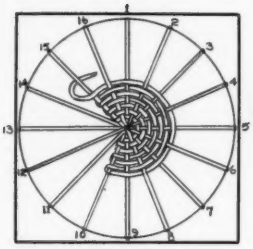
Fig 10

Fig 11

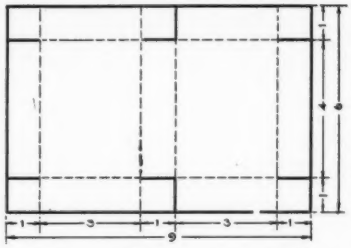
Fig 12

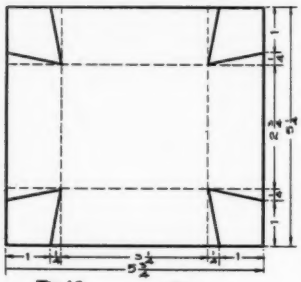
Fig 13

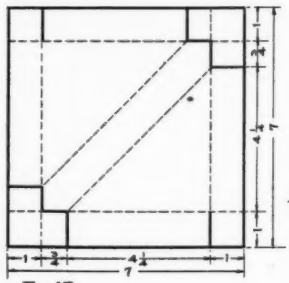
Fig 15

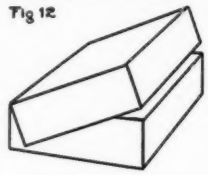
Fig 17

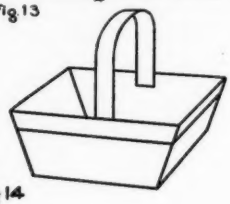
Fig 14

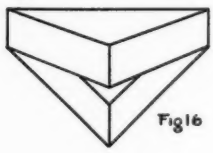
Fig 16

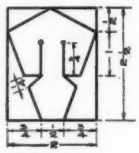
Fig 18

THIRD GRADE.

$\frac{1}{2}$″x8″ may be cut on the paper cutter. These strips are passed to the pupils, who cut them $\frac{1}{2}$″x7″. One-half inch is marked off at each end and the space between the lines just drawn is divided into inches and half inch spaces. (Fig. 7.) A small hole is punched at one end, as shown in Fig. 7.

If a two-inch circle is to be drawn a pin is thrust thru two one-inch marks and forced thru a piece of paper which is placed on a heavy paper on the desk to prevent the pin from going into the desk. The pencil point is put thru the hole at the end and swung around. Have several circles drawn, having the pupils measure the diameter each time. By careful questioning, the pupils will discover for themselves that the diameter is always double the distance taken on the circle maker.

Introduce diameter and circumference.

If the pupils have difficulty in holding the pin on which the circle maker swings, or if there is any danger of the pin defacing the desk top, the center circle may be marked by a pinhole.

The pin point may now be put from under side upward, thus bringing the head of the pin on the desk, and giving the pupils an opportunity to hold the pin (point upward) while describing the circle.

Blackboard Exercise.

1. Draw a 4-inch square.
2. Draw another square one-half as long.
3. Draw a 2-inch square.
4. Draw another square one-half as long.
5. Draw a 3-inch square.
6. Draw another square one-half as long.

Handkerchief Bag.

There are a number of interesting bags which may be made of raffia, either knotted or woven.

While the girls are weaving the bag, the boys may weave a circular mat.

Purpose:

To give the pupils experience in threading a circular loom.

To give practical number in halves, quarters, eighths, etc.

To review circumference and radius.

Presentation:

Give a short talk on raffia, telling where it comes from, how it is dyed, etc.

Tell pupils that raffia is not a kind of grass, but that it is the stripping of the palm leaf, the kind of palm from which the palm leaf fan is made. There is a certain time of the year when the outer covering of the palm may be stripped from the leaf. These strippings are tied or braided into bundles and sold as raffia. Most of the raffia used in our schools comes from Madagascar, an island off the eastern coast of Africa.

Construction of Loom.

Draw and cut, of bristol board or strawboard, a strip $\frac{1}{2}$″ wide and 7″ long. Mark off as shown in Fig. 7. With this strip as a circle maker, describe a 5″ circle, using the center of the square of strawboard as the center of the circle. (Fig. 8.)

Teach the pupils to find the center of the square by drawing the diagonals or a portion of the diagonals of the square. (Fig. 8.)

Divide the circle into eighths, sixteenths, or thirty-seconds, according to size. In this case the circle is divided into sixteenths.

Number the radii as in drawing. (Fig. 9.) With the darning needle, puncture the cardboard at each point where the radii touch the circumference of the circle.

The threading of the loom may be done with either raffia or carpet warp. Of the two, raffia makes a more attractive threading. It is, however, a little easier for the pupils to use the carpet warp. The loom, when ready, is threaded on both sides.

In order to begin with a thread of approximately the right length, have the pupils figure the length of a piece of thread that will go across one diameter eight times. This, of course, means eight times the diameter of the circle. (8x5″.)

Knowing what is required for one side, what is the length of the thread for both sides? Allow several inches surplus.

To thread the loom, tie a knot in one end of the warp, and proceed as follows:

Bring the needle up 1, down 9,
up 1, down 16,
up 8, down 16,
up 15, down 7,
up 15, down 14,
up 6, down 14,
up 13, down 5,
up 13, down 12,
up 4, down 12,
up 11, down 3,
up 11, down 10,
up 2, down 10.

Fasten securely, cutting off surplus. Thread the needle with raffia, and pass the end under the crossed warp threads at center, and tie up in a hard knot.

Begin the weaving at the center, beginning with thread 10, going over one thread and under the next, to thread 15. From 15, weave back to 10. Continue in this way until this portion of the circle is completed to the circumference. (Fig. 10.) Weave the other side the same way.

Cut threads between points 11 and 10, 12 and 13, 14 and 15. Thread each end in needle and weave back along corresponding threads. For example, 11 will weave back with 3; 12 with 4; 15 with 5, etc. Break the cardboard around circumference and remove inner portion.

By using a 3 or 4-strand braid for a handle, the bag is completed, and may be used by little girls for handkerchiefs. (Fig. 11.)

Mat.

Draw on a square of light weight bristol board, strawboard, or clothboard, a circle of desirable size for the mat.

Divide the circle into eighths, sixteenths, or thirty-seconds, according to size, as in the bag. Number the radii as in Fig. 9. Thread the needle with raffia and tie a knot in the small end.

Bring the needle thru 1, leaving the knot on the back. Carry the thread acoss to 9, thru to the back and on to 8; up thru 8, across to 16, thru to the back and on to 15; up thru 15, across to 7, thru to the back and on to 6; up thru 6, across to 14, thru to the back and on to 13; up to 13, across to 5, thru to the back and on to 4; up thru 4, across to 12, thru to the back and on to 11; up thru 11, across to 3, thru to the back and on to 2; up thru 2, across to 10, thru to the back, and up half way between 9 and 10.

Bring the thread back to the center, making an odd number of strands, which is necessary in order to do continuous weaving, going under one and over one. Here the thread is tied securely to the centers of the other strands. Begin weaving at the center, going over and under the next thread.

Weave a new thread along with the old one for two or three inches, thus avoiding knots. When the weaving is finished close to the edge, cut the threads with which the mat was strung, between 2 and 3, 4 and 5, 6 and 7, etc., on the back side of the mat. Remove the strawboard

Tie the cut ends in twos, in hard knots. Go round the edge again, tying the right hand strand of one knot to the left hand strand of the next knot.

Box With Cover Attached.

Fig. 12 shows a pattern drawing for a very interesting candy or gift box, with cover attached. It is made of a piece of tinted construction paper 6″x9″.

It must be remembered that all dotted lines are scored and all continuous lines are to be cut.

Allow squares in corners to paste to inside of box and cover.

If the dotted lines are scored before attempting to fold, the exercise makes a much better appearance when finished.

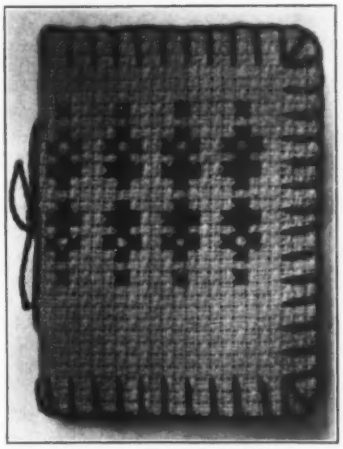

FIG. 4. THIRD GRADE.

Christmas Basket.

This basket may be made of tinted construction paper. The pattern drawing shows all dimensions. (Fig. 13.)

It will be observed that no paste flaps are allowed at corners. This is due to the fact that the corners are held together by a strip ¼″ wide and 12″ long, pasted around the top. (Fig. 14.)

Begin to paste strip at middle of one side, or end. By so doing, the coming together of ends does not occur at a corner.

Triangular Candy Box.

Fig. 15 shows a pattern drawing for a triangular candy box.

Fig. 16 shows finished box.

Circular Book Mark.

Fig. 17 shows pattern drawing for a very interesting book mark.

It makes a very attractive Christmas gift when made of a fairly stiff paper and properly decorated.

Draw a horizontal line 5″ long.

From one end set off radius ¾″ and describe a circle.

Draw lines parallel to the horizontal line ¼″ from it, on each side and complete end of model by vertical line.

Have the parallel lines just drawn extend ¼″ within circular part.

Small holes may be punched at the extremities of these lines.

Cut on all heavy lines. (Fig. 17.)

Book Mark.

Fig. 18 shows another interesting book mark.

Construct rectangle 2¼″x2″.

Draw lines inside parallel to the sides.

Mark off distances and draw oblique lines.

Cut on all heavy lines.

But the artist must employ the symbols in use in his day and nation to convey his enlarged sense to his fellow-men. Thus the new art is always formed out of the old. The Genius of the Hour sets his ineffaceable seal on the work and gives it an inexpressible charm for the imagination.—*Ralph Waldo Emerson.*

INDUSTRIAL-ARTS MAGAZINE

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EDITORIAL

INDUSTRIAL ART AND THE CHRISTMAS GIFT.

IN this pronounced ready-made age, when a telephone call will bring to our door or send to our friend's door the luxuries and necessities alike; when the privilege of doing for others is so largely represented by our ability to pay the price in dollars; when kindness has become second-hand and personal service almost extinct, it behooves the teacher to bring to children's minds the beauty and effect of self-made gifts. This is a particular function of the Industrial Art teacher in December. The fact that for a few cents a ready-made Christmas gift may be ordered, which will serve the purpose as well as the hand-made one, is not sufficient reason for such giving. There is a particular value—a *very particular, double value*—in the self-made Christmas gift.

PENALIZING EFFICIENCY.

IN the light of the experiences of some of the special teachers in having their positions abolished thru "policies of retrenchment," it is interesting to note some of the reasons offered by superintendents for selecting these particular positions.

One that has recently been offered for abolishing the office of supervisor of manual training is that the department in that particular instance is in such good condition that it may safely be risked a year or two without the services of the supervisor.

In other words, the argument is that the supervisor has done his work so efficiently that his services may safely be dispensed with. His efficiency has cost him his job. Does not this seem a rather ungrateful return for a fine service? Is the supervisor who has given years of his best thought and effort to a school system entitled to no consideration? If he has put the department into so fine a condition, should he suffer for it? And should the children suffer? Has he not some right to the future value of the services already rendered? Must he be unceremoniously thrown aside at the dictates of some penurious "board of education" or some superintendent who is struck with a sudden passion for "economy" without expense to himself?

We are not discussing the dismissal of incompetent teachers. We have in mind those admittedly competent people in art, manual training and domestic science who lose their places for "economy's sake."

We condemn the actions of certain administrators in crippling, at the first opportunity, the very departments that have never had a fair chance. Must the drawing, manual training, and domestic science be the last to receive recognition and support and the first to suffer from shortage of funds or other misfortune? Or should the departments and teachers suffer alike in the misfortunes that befall the systems?

UNFAIR CRITICISM.

IT is easy to acquire a super-critical attitude toward school work which renders one unfit to act as a judge of the work of children. The person who assumes to act as critic of any line of school work should take many things into consideration. He should not only be an expert in the line of work which he attempts to judge but should be familiar with the limitations of children.

Manual arts work has been in the schools of America for about thirty years. The older subjects—the so-called essentials—reading, writing and arithmetic, have always been there, yet the work done in the manual arts is altogether comparable with the results accomplished in the other subjects. In fact we challenge comparison of the work in manual training in any school with the reading, writing or arithmetic work of the same school. The penmanship of the pupils is universally poor yet no one has proposed that the teaching of writing be discontinued. Why, then, should we think of abandoning manual training because the work does not measure up to an expert's standard?

This is just saying in other words that the surveyor of manual arts work should not attempt to apply a commercial or adult standard to the work of children. No one claims that manual arts work is all that it should be, but the industrial arts teacher is altogether justified in suggesting to the academic critic of his work that he cast the beam from his own eye before attempting to remove the mote from the eye of his neighbor.

CULTURE.

DEFINITIONS of comprehensive things in life are rarely satisfactory. There has recently been given thru the press, several concise statements attempting to define culture. In these statements culture has been recognized by two accomplishments. First, the ability to think for one's self—thoughtfulness; second, the ability to control one's emotions. In these definitions the element of culture most necessary to the improvement of our American individuality seems to be omitted. Can it be that we conceive culture to be devoid of moral and aesthetical standards? Are we to admit that keenness

of intellect and composure of action give certain evidence of culture? To be sure the cultured individual is thoughtful and sedate, but he must be more than these; he must hold high standards of the beautiful, the good and the true. The successful rascal may be keen of intellect, thoughtful and composed in manner.

The cultural refinement most needed in America is not only thoughtfulness and composure but includes appreciation of and accomplishment in the arts. The pleasure of honest toil and the joy of creative industry are to this end. *Thoughtfulness must find expression thru the arts to become cultural.*

HIGH SCHOOL WOODWORKING.

ONE of the problems which is troubling progressive Industrial Arts teachers is what to do with high school woodworking. Woodworking is taught in nearly every high school that has a shop of any kind and is the first subject introduced in manual arts work.

Discussion of the purpose of manual arts work has been quite prevalent for the past few years, and opinions have differed widely. Some have held that manual training is a *method* of teaching and is only an auxiliary of other subjects; that it is a means of expression; and that its chief value is in the affording of opportunities for children to use their hands. Man is a tool-using animal and his progress in civilization has been no faster than his gain in skill in handling tools. Therefore to advance in intelligence it is necessary for children to use tools.

Others have felt that manual arts especially in the high school should give the pupils a degree of skill which may be utilized in the earning of a livelihood; that manual arts should give skill in some line which would constitute an asset in industrial work. This means that the work be somewhat specialized and that the methods of the school shop be similar to the processes of industry. In other words it is urged that manual arts work should be vocational in purpose and in content.

Now comes the report of the Committee on Allowance of Time of the Eastern Arts Association with a clear cut statement as to the purpose of manual arts work in both elementary and high schools. Elementary school manual training, it is said, should give experience which will enable the boy to choose his life work somewhat intelligently. Beginning with the first year of high school, "for that large number who have not determined upon their sphere of life work the purposes of the preceding grades continues, while for those who have determined upon an industrial occupation the purpose becomes purely vocational."

How does high school "woodworking" fit into this program? It is not a recognized vocation. There is no trade in industry which corresponds to high school woodworking. The woodworking trades are pattern-making, carpentry, and cabinet-making. There are a few men in industry known as bench men but their work bears little resemblance to the woodwork taught in high school. A vocational course in woodworking is therefore an absurdity.

THAT SPRINGFIELD SURVEY.

ABOUT two years ago, the Russell Sage Foundation made a survey of the Springfield, Illinois, schools. The part of the report dealing with manual training brought forth wide-spread comment because of the peculiar and revolutionary character of its recommendations.

One recommendation, it will be remembered, was that manual training teachers be dismissed; that systematic, organized courses in manual training be discontinued; that practical tradesmen be put in charge of groups of boys who should spend their time in doing the necessary repair work about the various school buildings.

So far as we are able to ascertain, no body in the whole country has ever approved such a scheme, much less tried to put it into operation. The scheme seems universally to have been pronounced extremely impracticable and very undesirable. In fact, this recommendation has been bandied about, the butt of more ridicule than any proposition we recall. It is easily the big joke of the last decade.

The value and helpfulness of surveys and surveyors must be measured by the reasonableness and sanity of the recommendations. They will further be measured by the fairness manifested by the surveyors not only in the work of the surveys, but also in the disposition to recognize and admit evident blunders on their part and to set about to rectify them.

We feel that the Russell Sage people owe it to themselves, to the school public, and especially to the manual training people of the country to reconsider this part of their recommendations and to follow such reconsideration with a further statement of arguments in its defense, or by a plain admission of error.

WOOD CANDLE STICKS.

AS a horrible example of the foolishness of manual training teachers, we have heard two or three speakers tell of finding the boys in manual training shops actually making candle sticks of wood. The matter is of very little importance, but if the subject is worth discussing in public, it is worth while to know the facts. Wood candle sticks are offered for sale in all of the high grade shops in the cities, in fact tall mahogany candle sticks are the "very latest thing" in the way of candle sticks. Furthermore wood candle sticks will not ignite when the candle burns down, even should the candle burn itself entirely out.

THE BOSTON CONTINUATION SCHOOLS

H. Stanwood Field, Director, Boston, Mass.

"The organization of the Boston Continuation Schools and the instruction offered has endeavored to meet the following aims which are believed to be the functions of the school:

1. To offer educational opportunity in such form as the young worker will accept.
2. To protect society by reducing the ranks of the unfortunate and the ignorant.
3. To secure a more complete democracy.
4. To train for useful, satisfying work as a reaction against influences which tend toward parasitic existence.
5. To lead the adolescent worker to occupy himself with wholesome activities
6. To offset the deadening influence of automatic work.
7. To bridge the gap between the idealistic school life and the practical life of business.
8. To lead toward the replacement of those means of intellectual and vocational advancement which were lost with the passing of the apprenticeship system.
9. To interest young workers in the ultimate ends of life rather than in the immediate ends, "To put them on the road to somewhere."
10. To assist young workers in making their vocational experience count.
11. To aid the individual in determining his most promising aptitude.
12. To inculcate habits of economy and thrift by being able to do things around the house.

Organization.

The organization of the Boston continuation schools is intended to be so flexible that the individual need of each pupil can be met. We realize that each child has some dominant interest and that quite naturally that dominant interest relates to the child's idea of what he would like his future vocation to be. Unless we can find something in which the child's interest can be aroused, our instruction is not likely to be effective.

When a child secures his employment certificate he enters into continuation school in what is called a "reservoir class." The child's stay in the reservoir class may range from a few periods to several months.

During the period of the pupil's stay in the reservoir class representatives of the school visit his place of employment and his home. Every possible means is employed to learn the child's greatest interest, his environment at home, and the conditions surrounding his employment. Having a knowledge of these things, our teachers are in a position to assist the child in selecting that type of instruction which seems most valuable to him. The child is then transferred to the department furnishing such instruction.

The period of adolescence is the period of change. The child's interests may change very rapidly and his idea of what he hopes to do and be as a man alter entirely within a short period of time. The school attempts to meet such changes by making transfers from one department of instruction to another department easy for the child and quickly accomplished. Thus the child goes on in the process of discovering himself and the work of the school becomes prevocational.

When the child seems to be reasonably settled in his vocational aims, and before the termination of his compulsory school period, the school attempts to place that child in employment which coincides with his vocational aim.

Follow-up Work of Boston Teachers.

The weekly program of each Boston teacher totals 32½ hours. Each teacher meets classes for 20 hours per week. The remaining twelve and one-half hours are devoted to follow-up work at the pupils' homes and places of employment. This is one of the most effective features of our organization. It often happens that these visits speedily turn apparent failures into startling successes. But preparation for effective follow-up work is necessary with many teachers. The follow-up visit is not a social call. It is a visit for information which can be used for constructive work benefiting the child. For each follow-up visit a written report is filed and the report remains constantly with the records of the pupil concerned. Follow-up work is the most difficult work of our organization, and in definite results is rapidly becoming the most effective.

Teaching.

Continuation school teachers must realize more and more fully that they are teaching individuals and not subjects; that the effectiveness of their work will be shown in the extent to which they inspire their pupils to ambition, to pride in labor and to an appreciation of the better things of life. Teachers must realize that their most vital results consist in these things rather than pouring into their children's ears in an interesting manner, facts related to general education.

No group of teachers has more interesting work than the Continuation School teachers. No group of teachers has wider opportunities for service; and the results of their labors may be most beneficial to society when applied to cases which appear to be least hopeful.

The greatest joy that comes from teaching is to see a less fortunate boy or girl enthused with ambition, inspired by noble motives and appreciative of the helpfulness which is extended to him. These things our teachers are experiencing daily, and I am certain that the satisfaction which comes from this endeavor will increase as our work is more thoroly understood and as organization becomes more fully adapted to meet the interesting problem which confronts us.

Children Out of Work.

Under the present Massachusetts law, a child between the ages of 14 and 16 years must be in regular attendance at day school, or in employment under an employment certificate, or at home under a home permit. Since home permits are granted only to cover employment at home, the fact remains that a child must be regularly in school or regularly employed.

Employment of children is usually of a temporary nature with frequent changing of job and varying periods of unemployment. A strict compliance with the Massachusetts law would force a child back into the conventional school immediately upon termination of his employment, and the child would remain there until a new position could be secured. It is educationally impracticable to force a child back into a regular school during temporary unemployment. A child dropping into the regular class for a few days or a few weeks can seldom be classified properly in courses in which the unit is a year's work, and such a child has little interest in pecking at one year's work while seeking a new job. He is a hindrance to the other pupils, and the idea of self-improvement thru study becomes more revolting to him. Little is gained thru such school attendance beyond keeping the child off the streets during unemployment.

When the attendance officers seek to compel children to attend conventional school during periods of unemployment, the children claim that they are seeking employment, and the court is likely to rule that a child has a right to seek employment and that so long as he is doing so, attendance at the conventional school cannot be enforced. It is too difficult to refute the child's claim that he is seeking employment, even tho he is spending a large part of his time with gangs of unemployed children in activities harmful to his welfare.

When a child under 16 years of age leaves the regular school to enter employment, he becomes a charge of the Continuation School. In the majority of cases such a child

The present paper constituted the basis of an address before the annual institute of teachers in continuation schools, Milwaukee, Sept. 6, 1916.

will never return to the conventional school. In case a child were compelled to return to the conventional school during periods of unemployment, he would again come back to the Continuation School upon securing a new position. The child's work at the Continuation School would be frequently interrupted by brief periods of attendance at the full time school. The Continuation School is in a better position to serve the interests of children during temporary unemployment than the conventional school, both because of the manner in which instruction is organized, and because of the facilities which the Continuation School possesses for securing re-employment.

It is obvious, that the hours of attendance required during employment are not sufficient for those who are unemployed. A child needs time in which to look for work but this time should not be so great as to encourage habits of idleness and result in the formation of associations which are likely to prove harmful. Children who are temporarily unemployed are required to attend Continuation School regularly for one-half of each school day, and such attendance is interpreted as meeting the requirements of the law. This arrangement affords sufficient time in which the child may look for work. It affords opportunity to give special instruction for specific employment and it centralizes responsibility for the child's welfare. I know of no other arrangement which is as effective in serving the interests of unemployed children and in reducing the number and length of periods of unemployment in which habits of idleness and bad conduct are easily formed.

We have, therefore, a fairly constant number of unemployed children attending the Continuation School daily. The replacement of these children in employment is a problem of the Continuation School, and a larger number of replacements are made from the Continuation School than from any other source. Many employers have ceased to advertise for young workers, and telephone their needs to the Continuation School instead. Employed pupils of the school feel their responsibility toward their mates who are out of work, and advise the school of vacancies where young workers can be placed. Department stores are continually having special sales which require large numbers of additional help. Such employment is temporary. The stores formerly advertised for help during these sales, and children left the high and elementary schools for a few days' employment, never to return. The stores now notify the Continuation School of the numbers which they will require for their special sales, and the necessary number is supplied from our out-of-work group.

Bookbinding as a Subject for School Instruction

Elno Reavis

Bookbinding deserves a place in our schools, and the little already done in its name should be much extended. There are several specific claims which this craft can rightly make in its own behalf and which I will review for you:

First—Bookbinding embraces a very *wide range of problems*—from, for example, the simple booklet made of a paper cover around a few leaves, which any small child finds pleasure in putting together, up to the leather-encased volume bound by the master craftsman. It is, therefore, suitable for progressive instruction; it is adaptable educationally.

Second—Bookbinding reaches from the severely practical to the genuinely artistic, sanely combining the two, and is particularly suited for teaching their proper inter-relation.

Third—Bookbinding is of universal application; we come into touch with it every day in our ordinary lives. Whichever way we turn, we meet some form of book or booklet-making; it is a democratic necessity.

Fourth—Bookbinding employs only a very limited range of materials, and they are ones with which our children should be much better acquainted—the *paper* that everyone uses, and wastes daily; the *leather* which each must wear, and yet not one in a thousand can accurately identify or value; the *cloth*, adhesives, and a few other things about which remarks equally uncomplimentary to our fund of information can be truthfully made. Surely we should have more practical knowledge of these materials; if for no other reason than that we may buy them economically, and save their needless destruction.

Fifth—Bookbinding, in its more advanced forms, requires calculations, planning, and selection of best method for each step; it admits of only limited successful correction of errors, and for these reasons develops concentration in the pupil, along with an appreciation of care, neatness, cleanliness and accuracy in work.

Sixth—Bookbinding induces respect for books, along with a desire for their preservation; and it may well be a stepping stone toward development of a taste for what is within the book covers.

Seventh—Bookbinding is of commercial importance and, in certain of its branches at least, offers profitable employment to those engaged in it as a business.

Eighth—Bookbinding is of practical worth to the schools themselves because, under proper guidance, pupils may greatly help in the preservation of school books.

We have made books absolutely democratic and placed them within the reach of the poorest and most distant. Our wealth of cheap books has had its place in our national life, a great and a valuable place; it has been of inestimable worth to us and we should in no way detract from its honor. But have we no place for those bindings which are more enduring, which are livened by the spark of individuality and show the touch of the human hand? Will we be wholly satisfied with unsubstantial and faulty book construction, and flimsy coverings (mostly imitations) which, tho pretty at first to look upon, we know will fade away with other shams and make-believes in a few short years at most? No! I believe we have a place in this country for hand binding, and that there are unoccupied business opportunities for good hand-bookbinders—not people waiting to place orders, but ready to be taught that they need an occasional book bound, just as much as they need a new victrola record once in a while. All such things become necessities to civilized man once he gets used to them. So it should be with bookbinding in our homes.

I will give you a single specific example to try to make clear and emphasize my thought. Take the matter of preserving periodicals; some of them at least are worth putting into book forms, are they not? We can probably all agree upon the National Geographic Magazine, for instance. I am glad to mention that particularly, because the publishers have just given me the figures of its circulation in California. They were indeed a surprise, 36,000 in this state. Now, if these 36,000 subscribers in California would bind their two volumes this year that would be 72,000 copies of the National Geographic to be bound. And I am sure that every subscriber who can afford to pay two dollars a year to get the magazine can also afford another dollar or so a volume to put it into shape to preserve for his children, his friends and himself. And this is only *one* title, and one suggestion as to the binding for individual homes. Your own minds will doubtless carry you to the many multiplied possibilities which there are in such work, when once the habit of binding becomes common with our people. They do not bind now because they have never thought about it; they do not know what it will cost; binding has *not yet* become a necessity to them.

I happen to know that a few high schools are seriously considering the introduction of this work in their courses. To such as have mentioned the matter to me I have said: "Your most important concern or the course must be your *instructor*. If you place a so-called *commercial binder*—who is nothing more—in charge, your work will be of too *low* a grade, and much along the lines of edition binding. If on the other hand, you place a so-called *craft binder* in charge

—one who knows only the slowest hand methods—your pupils, while they may make a few good individual specimens, will get no further; the teacher lacks the commercial outlook. You should have a combination of the two in your binder—the craft spirit, artistic enough and highly enough trained to produce genuinely good work, yet the business sense acute enough to realize that most of our pupils want eventually to make something out of what they are learning."

A question which I suppose will naturally arise is: "How can I qualify myself?" My answer may not be as informative as you would like. Bookbinding as a school work is not yet on the *easy road*, you must learn from those who have written. There are already several texts on bookbinding by English authors; there may be found occasional opportunities for a teacher to do actual work in some shop, but these are rare, and while to be gladly accepted would probably give experience in one phase only of the subject. Our Normal School is offering some work in bookbinding and we may probably hope for its extension, as a greater interest is manifested on the part of students.

There should be openings in our schools for the supervision of such work in the grades. A series of problems can be outlined quite as well in this subject as in any other branch of hand-work, and the more elementary of them at least can be well taught by grade teachers under the supervisor's general direction, and without the teachers themselves having a knowledge of real bookbinding. In such a way the mending and care of school books can be accomplished. It is folly to imagine that just anybody can mend; *repair work* really requires the very best understanding of construction, processes and materials, so that the mending may be suitably done. But if the supervisor has this full understanding of the subject, she can reduce the weaknesses of books to a series of classes of defects, as, for example (1) torn leaves, (2) loose leaves, (3) covers loose, (4) covers torn, (5) sewing broken, etc., and can formulate mending exercises for each type of defect; she can have the exact material selected for use; she can specify the particular process to be followed; and the actual work can be carried out by grade teachers, and in the larger schools under the supervision of the librarian. —*Address.*

THE NATIONAL SOCIETY'S CONVENTION.

The executive secretary of the National Society for the Promotion of Industrial Education has announced that the tenth annual convention will be held on February 21 to 24, 1917. These dates have been chosen in part because they precede the meeting of the Department of Superintendence of the National Education Association, which begins at Kansas City, Mo., February 26, 1917.

On account of this conjunction of dates, schoolmen will be able to attend both meetings with a minimum sacrifice of time. While it will be impossible for all to attend the full sessions of both these great gatherings, a large number, doubtless, will desire to avail themselves of a part of each. Special thru trains from the Indianapolis convention direct to Kansas City are being planned.

The meeting in Indianapolis will come at the close of a State Vocational Survey conducted during the present year by the State Board of Education co-operating with local school corporations. It comprises a county survey, several city surveys, and culminates in an extensive survey of Indianapolis.

At a recent meeting of the Program Committee of the National Society for the Promotion of Industrial Education in New York, plans were formulated which insure a program of unusual significance and interest.

The advance program which will be in the hands of members about the middle of December, will contain such topics as the following:

Ten Years of Progress.
Vocational Education and National Preparedness.
Needed Changes in Legislation Affecting Vocational Education.
Possibilities and Accomplishments of Trade Agreements in Industrial Education.
The Scope, Methods and Findings of the Indiana State Surveys.
The Significance of Indiana's State-wide movement for Vocational Education.

Section meetings will deal with such questions as:

The Department Store as a Training School.
The Utilization and Disposal of Product in Vocational Schools.
Publicity Methods for Evening Industrial Schools.
The Scope and Method of the Small Town Industrial Education Survey.
General Household Economics Courses in Vocational Schools.
Training of Persons Having Trade Experience as Vocational Teachers.
Problems of Industrial Education in Schools Under Public Administration.
The Resources of the Departments of the Government and Vocational Education.

THE NEED OF INDUSTRIAL ART.

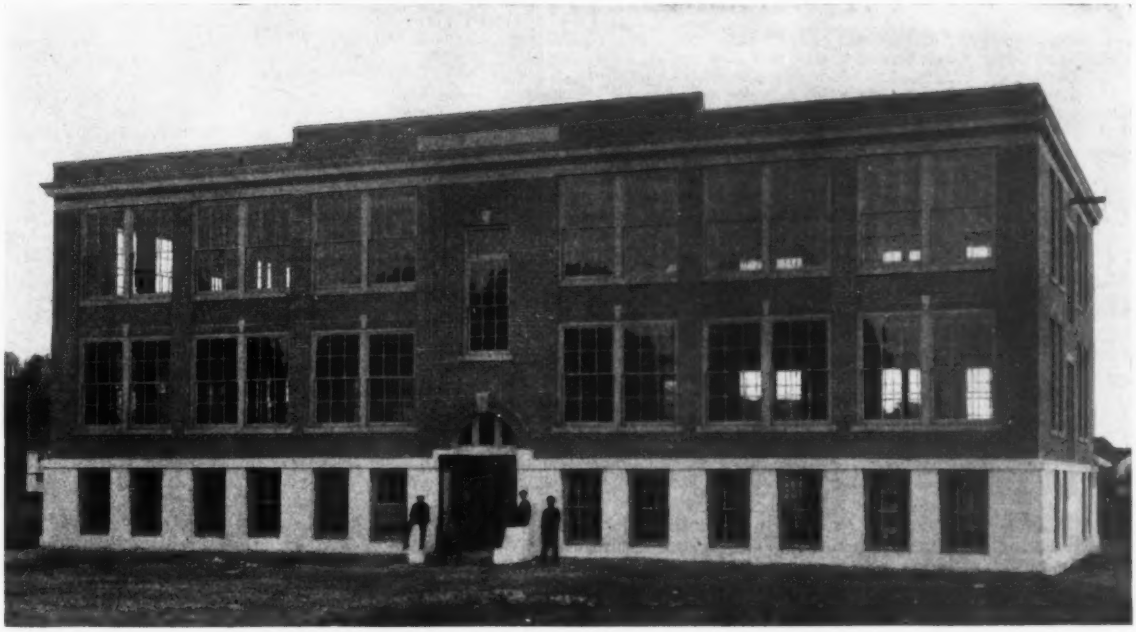
"This country needs a campaign for preparedness in Industrial Art. It has the talent, but it does not know how to mobilize it." So stated Dr. James P. Haney at the October meeting of the New York Municipal Art Society. The meeting was called to determine "The Artistic Responsibility of the Art Societies to the City Before and After the War." Mr. F. Wellington Ruckstuhl spoke on behalf of the sculptors, while Dr. Haney urged co-operation between the art societies and manufacturers. Said he in part:

"We have abundance of talent in this country, but no sane method of sifting it out. We talk much about vocational guidance, but not a dozen high schools thruout the land are organized so as to catch young people of artistic ability and properly train them to enter advanced industrial art courses. Our industrial art instruction, the country over, is shockingly deficient. Even New York, the biggest manufacturing city on the continent, has no industrial art school of its own.

"We do not even know how far we are behind and so have taken practically no steps to unite our forces which might lead for industrial art supremacy. Before the war these lessons were apparent, but as the war has progressed our failure to recognize our industrial art opportunities has become more and more clear. Our art societies should unite to advance the industrial arts. Most of our artists in the trades are mere copyists, sponging on the work of men in Paris and other Continental cities. There is no need of this. We have the skill, but we do not know how to use it. Twenty-five years ago there was virtually no market for American landscapes. A canvas had to bear the mark of Paris or Munich upon it to be acceptable. Thanks to intelligent action on the part of a few scores of people, the American landscape school is now known thruout the world, and the American landscape painter has reaped the reward of this recognition.

"Exactly this same thing is possible along the lines of industrial design. What we need is co-operation between art society and manufacturer. We need an industrial art committee of the Board of Trade; an industrial art committee of the Board of Education; an industrial art committee of the Fine Arts Federation. We need scholarships for talented pupils; we need industrial art courses in a dozen different high schools in which these pupils can early be trained. We need an industrial art school of our own with a dozen to a score of different courses, forwarding the student directly into the industrial art trades.

"All this costs money, but more than this, it costs interest and attention. The money it costs is not a tithe to what the city loses yearly thru the inability to mobilize its own industrial art forces. Millions in money have been sent abroad to pay for goods enriched by foreign artists. If we are wise we shall seek, thru every art society and thru every trade society, to develop an industrial art of our own and to reap for ourselves the huge profit which such a development will mean."



STATE TRADE SHOP, PUTNAM, CONN.

The Connecticut State Trade Shop at Putnam has recently occupied a new fireproof building erected for its use by the town of Putnam. The building affords space on the first floor for a carpentry shop, a machine shop and an office for the director. The entire second floor is devoted to the textile department, and the third floor accommodates an electrical shop, a drawing room, several classrooms and a complete textile dye plant. The school offers complete trade courses for textile workers and for carpenter and machine shop apprentices. In addition manual training is offered for grade and high school students. The school is under the supervision of Mr. A. S. Boynton, director.

Art Teaching.

Mr. Royal Bailey Farnum, Specialist in Art Education for the New York State Education Department, makes a few suggestions for improving art teaching which seem especially timely. He writes:

"A word of caution may not be amiss with regard to the drawing courses. The usual tendency is for a teacher to attempt too much. This is partly due to a preconceived idea that the State Department requires an unusual amount of work and also to the fact that the teacher is often not thoroly familiar with the subject. The amount of work is determined largely by the character of the course and the teacher's familiarity with the subject.

"Every course should be clearly and definitely outlined on paper before it is presented. A brief outline or synopsis will not do. It must be a comprehensive, detailed survey of the subject outlined by periods, weeks, months and terms. The day's work must be previously planned. The points to be reviewed must be quickly and intelligently discussed and the points to be taken up must be clearly made and emphasized. No good results can be accomplished without careful thought and much labor, but if the instructor is fully prepared, the pleasure of having completed a task well is its own reward. Successful results must necessarily follow. Therefore a prerequisite is a definite plan based upon a limited course of study. More than one course may be offered but each course must be simple, direct and well thought out.

"The class lessons should be illustrated by pictorial or other examples of the work in hand. The technic should be both explained and actually shown by the instructor. This may be accomplished by means of the blackboard, large sheets of paper and small drawings made before groups of pupils surrounding the teacher. There must prevail constantly an atmosphere of serious thought and activity. Repeated but tactful "checking up" of the class as a whole, memory tests, well directed and brief questioning, student criticisms of class drawing and team and individual competitions will create this spirit of work. Under class instruction of this kind, where the teacher is helpless without complete knowledge of her subject, the amount of work will take care of itself."

Detroit, Mich. Advanced work in electro-plating is offered at the Cass Technical High School. The course is intended to provide technical knowledge of the industry for the benefit of men in the trade.

Chillicothe, O. Courses in carpentry and concrete construction have been introduced in the high school.

Minneapolis, Minn. Courses in salesmanship for bundle wrappers, cashiers and experienced saleswomen have been introduced in the Girls' Vocational School.

Boston, Mass. The North Bennet Street Industrial School re-opened its evening school season with classes in carpentry, cement and concrete construction, printing and claymodeling for men, and power machine operating and trade dressmaking for women.

St. Joseph, Mich. The manual training course in the schools has taken on an added importance thru the addition of new machinery, the employment of a full-time instructor and the construction of practical problems for school use. During the present school term, the boys will make the shelving for the agricultural room, cabinets for the victrola and stereopticon records, mechanical drawing and sewing tables, bookcases and manual training benches. The furniture which will be used in the new building, will be constructed, stained and varnished by the boys of the department.

Columbus, Ind. A Home Crafts Club, organized by the country boys of the high school, was successfully conducted during the past year. The club was formed as a regular class and credit was given for work properly done. During the past summer the boys spent their entire time on the farm, making articles of general utility. The boys bought tools and made concrete fence posts, farm gates, poultry feeders, chicken coops and other equipment needed on the farm.

PROBLEMS AND PROJECTS

The Department of Problems and Projects, which is a regular feature of the INDUSTRIAL-ARTS MAGAZINE, aims to present each month a wide variety of class and shop projects in the Industrial Arts.

Readers are invited to submit successful problems and projects.

A brief description of constructed problems, not exceeding 250 words in length, should be accompanied by a good working drawing and a good photograph. The originals of the problems in drawing, design, etc., should be sent.

Problems in benchwork, machine shop practice, turning, patternmaking, sewing, millinery, forging, cooking, jewelry, bookbinding, basketry, pottery, leather work, cement work, foundry work, and other lines of industrial-arts work are eligible for consideration.

Drawings and manuscripts should be mailed flat and should be addressed:

The Editors, INDUSTRIAL-ARTS MAGAZINE, Milwaukee, Wis.

WAGON JACK.

Wm. H. Mulvey, Biwabik, Minn.

Among the many problems of farm work that can be done in the wood and forge shops of the manual training department, the wagon jack seems to be one of the most popular and useful. Even in the village and city where heavy wagons are used, this jack is a very popular project.

The jack has been known to lift with ease the back wheels of a wagon loaded with three tons of pressed hay. Altho it is built to fit the wagons on the farm, the jack has been modified to fit dray wagons and several have been made for use in the garage, thus offering a quick and sure way of raising the wheels of an automobile.

Any good hardwood can be used in making the jack, but red oak, rock elm, or white ash are best. Two or three good coats of pa nt will do as a finish.

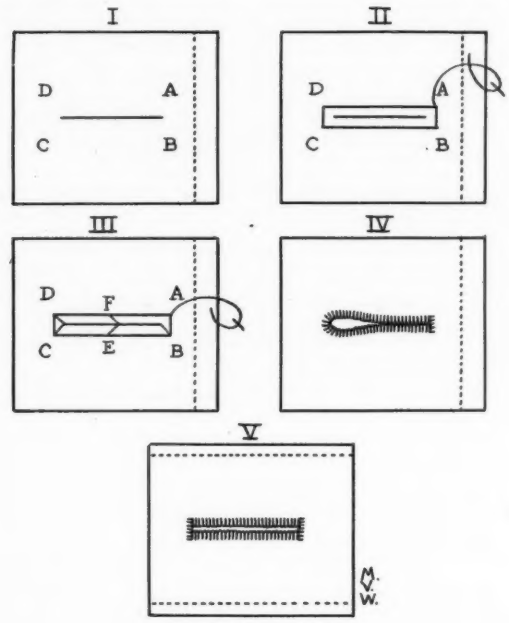
BUTTON-HOLES.

Marian L. Whitwood, Fresno, Cal.

Making good button-holes is an art, acquired only by patient practice, but the beginner will find it much easier to make a neat button-hole—not a "pig's-eye"—if a good foundation is made. Many people make a good button-hole and omit either the bar or the overcasting, but I have yet to see what I should consider a *good* button-hole, where both bar and overcasting are omitted. Each has its use. The two thicknesses of goods are held in place, so that cut edges remain even when the slit is barred. The edges do not fray when overcast and a beginner will find her greatest difficulty in keeping edges from fraying, so the time taken to overcast will be more than compensated for in the appearance of the finished edge.

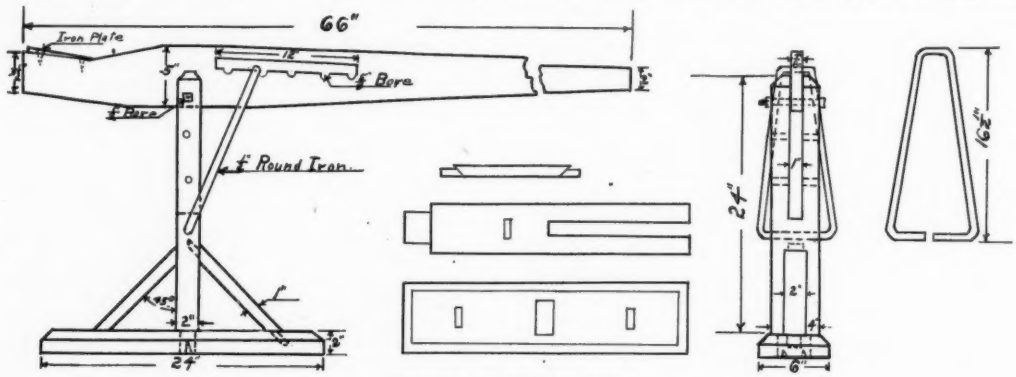
Another essential for a good button-hole is a straight, clean cut, between two threads, if possible. A jaggedly cut slit will never result in a good button-hole. Button-holes should not be too near the edge of the closing. Do not use too fine thread, for, while the button-hole may be beautifully made, it will not stand wear so well as if made with coarser thread. On ordinary cambric, long-cloth and other material of like weight, No. 50 spool cotton is about the right size.

When button-holes are placed in a box-plait they should run up and down and should be blanket-stitched at *both* ends. When placed in a cuff, end of band and in similar places, they should have one round end, which is *always* toward the edge of the closing, and one end blanket-stitched, this being the inner end and the place where the button-hole is commenced.

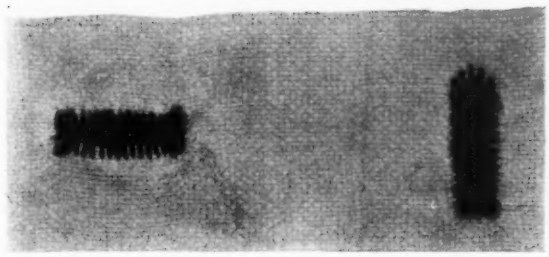


Detail of Button-Hole.

Round-end button-hole: Use no knot in thread. Referring to Fig. I and holding edge of closing *from* you, put needle down at *a*, just below end of slit and about 3 threads to side, and bring up at *b*, drawing thru so that about one inch of thread is left; repeat once, drawing closely but not tightly; put needle down at *c*, and up at *d*, turning work meanwhile; repeat once; now down at *a*, and up at *b*. This completes the bar—see Fig. II. Now overcast by putting needle down in slit and up at *e*—see Fig. III; down in slit and up in corner *c*; down in slit and up in corner *d*; down in slit and up at *f*; down in slit and up in corner *a*. This completes



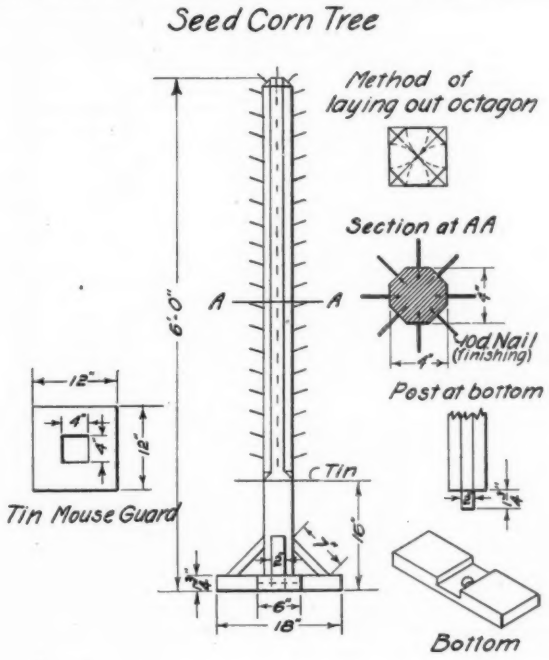
DETAILS OF WAGON JACK.



Completed Button-Holes.

overcasting. Now put needle *down* in corner *b* and up in slit. Now, holding edge of closing *from* you with side *b e c* at your left, button-hole up left side. The first stitch is made by putting needle down in slit and up thru side near corner *b*, far enough out to cover bar and overcasting. While needle is still in work, pass threads from head of needle around under point of needle from side toward you to opposite side and draw needle up and out to right. Draw gently but firmly into place, making a purl on edge of slit. Keep stitches an even distance—not too far—apart, and covering same distance from edge of slit. Work about ¾ of way up left side in this way, then gently draw thread down toward you each time, causing stitches to slant gradually as you approach corner. Spread stitches around end as in illustration, drawing thread more nearly vertically at end of slit so that purls will not crowd. Going down side *d f a*, slant stitches a short distance as on opposite side and then make at right angles to edge down to corner *a*. Now put needle down at *b* and up at *a*, drawing snug to bring sides close. Blanket-stitch across end by inserting head of needle under threads and holding thread from needle to left of needle with left thumb, bring needle up and draw gently to left and toward you. Make 3 stitches to left of slit in this way. Now make one stitch by holding thread in same way but putting point of needle down thru cloth and up thru slit. Then make three more blanket-stitches to right of slit and put needle down thru material, being careful to place this stitch so that blanket-stitching will lie flat and not turn over. Fasten securely on under side. For finished button-hole see Fig. IV.

Square-end button-hole: Make foundation same as for round-end button-hole and button-hole up left side, keeping *all* stitches at right angles to edge of slit. When near corner *c*, put needle *down* at *d*, and up at *c*, drawing so as to bring edges close; repeat once. Now blanket-stitch across end as instructed in directions for finishing round-end button-hole. After seventh blanket-stitch, put needle down thru cloth and up thru slit, then button-hole down side *d f a* and finish other end with blanket-stitch n same way. See Fig. V.



SEED CORN TREE.

Louis M. Roehl.

Material Required.

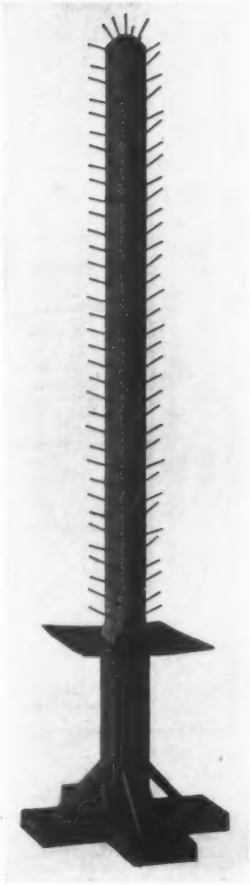
Lumber—1 piece 4″x4″x6′ 0″ of any kind of soft wood.
1 piece 2″x6″x3′ 0″ of any kind of soft wood.
1 piece 1″x2″x2′ 0″ of any kind of soft wood.

Hardware—16 flat head bright wood screws 1¼″ No. 8.
1½ lb. 10d finishing nails.
1 piece tin 12″x-12″.

Stock Bill.

Pieces	Finished Dimensions	Use
1	4″x4″x6′ 0″	Tree
2	1¾″x6″x18″	Foot
4	13-16″x2″x7″	Braces

Directions.



Seed Corn Tree.

1. Reduce all pieces to finished dimensions.

2. Lay out an octagon on the upper end of the tree as shown in the detail drawing and then lay out a chamfer on each corner of the tree to within 16″ of the lower end of the tree. Remove stock for chamfer with plane and chisel.

3. Shape top of tree as shown in drawing, removing the stock with the plane.

4. Lay out a half lap joint for the two pieces for the foot; remove the stock with saw and chisel.

5. With saw and chisel, shape the lower end of post as shown in detail of "post at bottom."

6. Place the two pieces for the foot together and bore a 2″ hole thru the center for bottom of post.

7. Brace the post as shown in the drawing, using two screws at each end of each piece.

8. Cut a square hole in the center of the tin mouse guard as large as the tree and strip on the tree to bottom of chamfer.

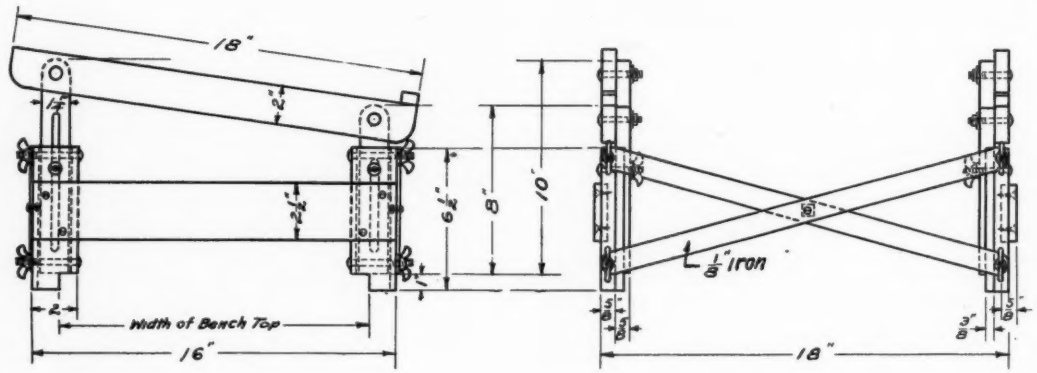
9. Place nails 3″ apart in a staggered position at about such slant as shown in drawing.

New York, N. Y. Plans have been made for an extension of the courses for industrial workers in elementary schools. The work, which is under the direction of the Manhattan Trade School, has an enrollment of about six hundred girls.

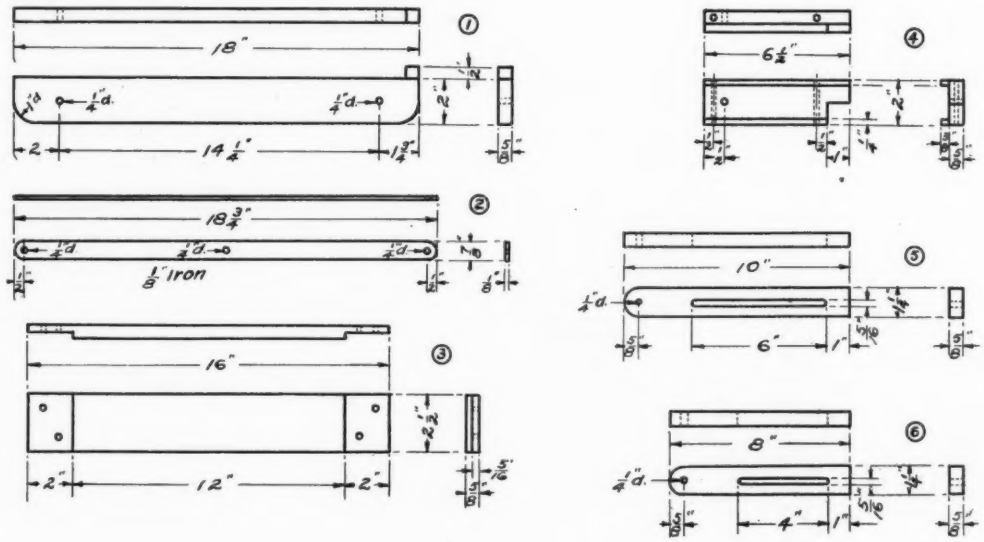
Denver, Colo. A special class for housemaids has been formed at the Opportunity School. The class will make a scientific study of housework and will be under the direction of a special instructor.

DRAWING TABLE FOR WOODWORKING BENCHES

DESIGNED BY R.E. ABERCROMBE



This drawing table was designed and used for two years in the Hartwell High School, Cincinnati. The particular advantages of the stand are that it is adjustable for height and slant, is easy and cheaply made and is collapsible. It may be hung at the end of a work bench or placed under the top of a bench as desired. Mr. R. E. Abercrombie is the designer.



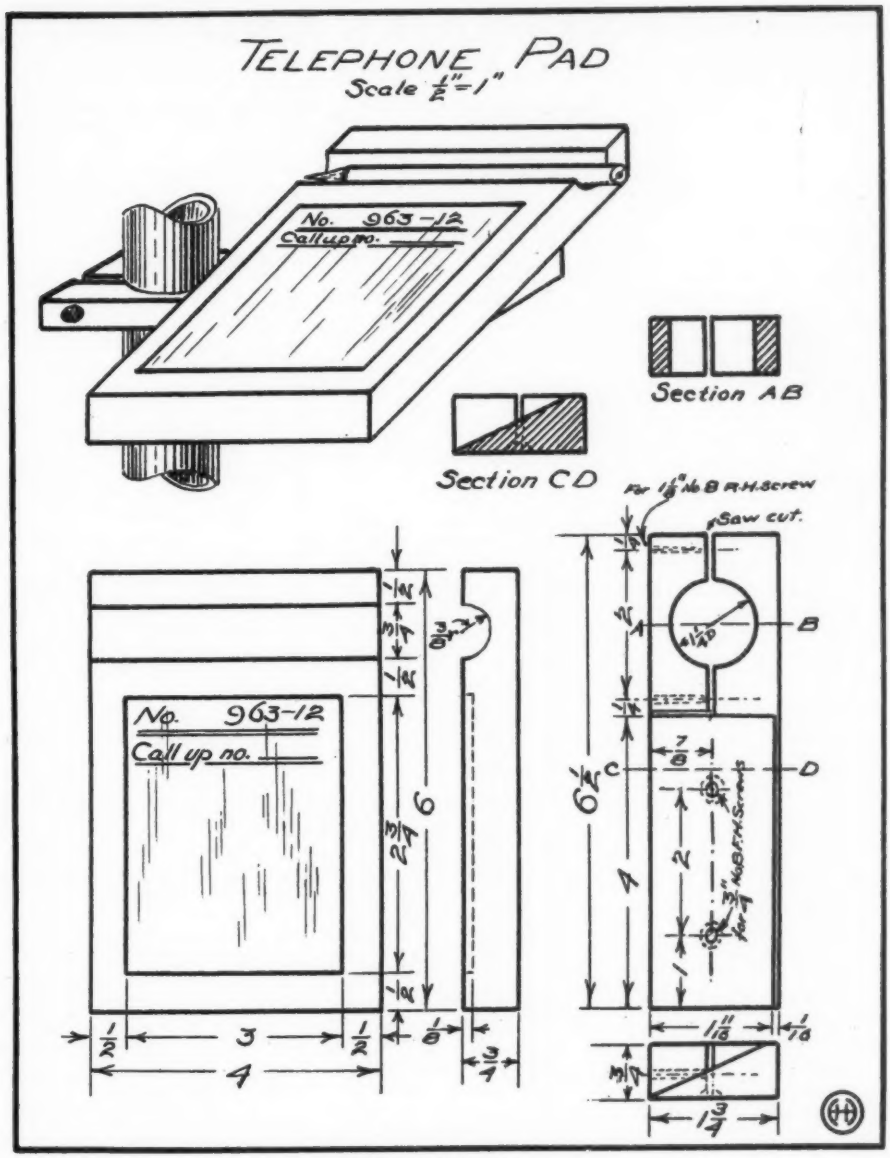
TELEPHONE PAD.

E. H. Bruce,
Instructor in Manual Arts,
Meriden, Conn.

One of the difficulties found in connection with a telephone is, that pencil and pad are never handy when most needed.

A very attractive and useful addition that will balance the receiver is a "Telephone Pad" which is made to fit around the shaft, and is always in place with the number printed in waterproof ink on the ground glass slate; other numbers may be added, but a space for a note should be left at the bottom.

The pad can be made of any wood to compare with the furnishings of the room, or can be painted black to match the telephone itself.



Details of Telephone Pad.

NEW SCHOOL FARM FOR BOISE.

The Boise, Idaho, Board of Education has recently purchased a forty-acre tract of land adjoining the city limits and lying within the territory of the school district. This so-called school farm, which was purchased at $300 an acre, will be used as a laboratory for the agricultural department of the high school.

The work of this department was started seven years ago as a text-book-laboratory subject and as the work advanced a quarter of a city block was used for experimental purposes. During the fourth and fifth year a larger tract of land and an orchard were rented, and for the past two years an old farm, which is situated four miles from the town, was leased. The work offered by the farm to the agricultural and manual training classes consisted in repairing dilapidated buildings, rebuilding fences, building a concrete silo, draining and fertilizing land, reclaiming the orchard from pests and decay, raising crops, and maintaining a dairy herd, hogs and poultry.

As the terms of the lease on this farm were unsatisfactory and the distance of the farm from the school was too great, the board concluded to take a step which would do still more for the science of agriculture, thus resulting in the purchase of the present school farm.

All the buildings will be erected and the whole development of the farm will be made by the boys of the school as a part of their school work. The architectural drawing class has completed the plans for a large dairy barn and a construction class in manual training is now at work on the barn. The drawing classes are preparing plans for a farm house, a dairy house, laboratory and lecture room, machine sheds, a piggery, and other buildings. The sod was broken this fall and a rotation of crops will be started in the spring.

Ninety-eight school districts of Pennsylvania have opened continuation schools, with 350 teachers in charge of 24,000 minors, according to a recent report of Dr. Nathan C. Schaeffer. Thirty-two agricultural schools have been opened in various parts of the state and additional ones are planned for other communities.

St. Paul, Minn. An evening class in cement and concrete construction has been formed at the Mechanic Arts High School. The course is practical in character and aims to make prospective builders more proficient in this line.

Mr. Raymond F. Booth has accepted the position of vocational advisor in the Department of Vocational Guidance of the Chicago schools. Mr. Booth assumed his position on September first.

Miss Dorrice Robinson of Bangor, Me., has been appointed teacher of salesmanship at Logansport, Ind.

RECENT BOOKS AND PAMPHLETS

Industrial Arithmetic.

White and Colgrove. 285 pages. Webb Publishing Co., St. Paul, Minn.

There has been a steady and increasing demand for texts in arithmetic that touch more intimately the problems and activities of the industrial world. This text has met the needs along this line in a very satisfactory manner. It begins with a review of the elements and principles of the ordinary arithmetical processes. The table of contents includes such topics as: Construction Work, Levers, Pumps, Hot Water Heating, Electricity, Locomotives and Automobiles, Poultry and Dairying, etc.

This book is intended for the grammar grades and the first-year high school, and also for vocational work.

Fundamental Tool Processes in Woodworking.

A. P. Laughlin. 64 pages. Price, 35 cents. Published by A. P. Laughlin, Peoria, Ill.

This little book contains as much good material as many of the more pretentious volumes. It not only describes clearly and briefly the tool processes, but also gives many helpful suggestions to the teacher in methods of teaching. It is an interesting and meritorious effort to provide a simple manual for both teacher and pupil in elementary woodwork.

School Sewing Based on Home Problems.

By Ida Robinson Burton and Myron G. Burton. 393 pages. Vocational Supply Company, Muncie, Ind.

This book seeks to develop sewing as a school subject from the standpoint of the girl's interests and of the needs of the home. It is sufficiently broad in scope to supply material for the three upper grades of the elementary school and, if desired, for a year of high school. The book is divided into sections, each composed of ten projects. The working directions for each project are preceded by a statement of its utility, a list of materials and suggestions for four or five optional modifications of the project. The last mentioned idea is carried thruout the book and makes possible a wide choice of articles which may appeal to girls. For economy of space and ease in reference the author has placed the illustrations and descriptions of sewing processes in an appendix. In this part of the book she has also presented a very complete discussion of textiles, patterns and pattern-making and a chapter on the care and repairing of clothing.

The book makes sewing a pleasure and a privilege and should become exceedingly popular as a school text.

School of Practical Electricity.

Book V. By O. Werwath. Cloth, 347-410 pages. Electro-force Publishing Co., Milwaukee, Wis.

This book takes up telephony in the same practical, complete manner that characterizes the earlier volumes of the series. The principles of telephony are thoroly discussed, and instruments and wiring systems are described. The laboratory problems and review questions are complete.

Clothing for Women.

By Laura I. Baldt, Instructor in Teachers College, New York City. Cloth, 454 pages. J. B. Lippincott Company, New York, N. Y.

This book is the first of a series of "Home Manuals" to be published by the Lippincotts. If the volume is a fair example of the works which are to follow, the series should be successful indeed.

While the book is written chiefly for the mature woman in the home, it is a textbook in style and content and is splendidly adapted for use in advanced high-school, college and teachers' training classes. The subject is developed logically by discussing first, the clothing budget and then in sequence, fabrics, design and color, pattern-making and patterns, constructive processes, the construction of the various types and classes of garments, and finally the decoration of garments. Thruout the description of processes is clear, terse and at times surprisingly comprehensive within a minimum of space. While it is taken for granted that the reader or student has considerable experience, any intelligent woman can use the book to good advantage.

The illustrations are very complete, well arranged and intelligible. The colored plates are excellent and illustrate the points which the text emphasizes. More precise results could have been obtained, we think, if lithography had been used here in place of three-color work.

The book will commend itself to every teacher of sewing.

Development of Design Thru Paper Cutting.

By Esther W. Wuest. Printed by the Jefferson High School Press, Portland, Oregon.

All methods of developing design are of interest to the art teacher. The illustrations in this pamphlet are of excellent line and arrangement. There is little definite instruction as to method in the text, but the examples shown of patterns and panels cut in paper are remarkably attractive. It is stated, "The illustrations are selected from the classroom work of pupils in the elementary schools of Portland, Oregon." If the designs are original with the pupils of Portland, then these pupils have reached a high order of development in the arrangement of pattern.

PUBLICATIONS RECEIVED.

Fundamentals of Reinforced Concrete Design. By Ernest McCullough. Bulletin published by the Portland Cement Association, Chicago, Ill. A technical discussion of the elements of design for reinforcing concrete columns, beams, tanks, etc.

Copies will be sent free to anyone who will address the Association.

Shopwork for Grades Six, Seven and Eight, Boston Public Schools, 1916-17. F. B. Dyer, Supt. The pamphlet discusses the aims, means and minimum requirements, suggestions on aims, matter and methods, specified instruction sheets for the use of students, and gives a number of suggestive problems taken from current magazines.

Drawing and Manual Training for Grades Four, Five, Six, Seven and Eight, Boston Public Schools, 1916-17. F. B. Dyer, Supt. The pamphlet presents suggestive lists of equipment and supplies for these grades, discusses the aims, means and minimum requirements, and presents suggestive courses for each week of the school year.

Second Annaul Report on Boys' and Girls' Club Work, for the State of Massachusetts, December, 1915. Prepared and issued by the Massachusetts Agricultural College, Amherst, Mass. The pamphlet outlines the aims and organization of the club work, the lines of work carried on, the methods used, and the results.

Concreting in Cold Weather. Published by the Portland Cement Association, 111 W. Washington St., Chicago. A pamphlet of suggestions for carrying on concreting construction in freezing weather. Specific directions are given for heating materials and forms and for protecting completed work against frost. A valuable pamphlet for teachers of concrete work.

Free Night Schools, Vincennes, Ind., 1916-17. The work embraces courses in manual arts and trade training for men and courses in home-making for women. The first includes courses in applied mathematics, salesmanship, mechanical drawing, auto operation and repair, art cabinet-making, and vocational English. The course for women includes unit courses in cooking, the preparation of typical menus, special dishes and lunches; three short unit courses in millinery; two short unit courses in beginning and advanced dress-making and a commercial course.

Cincinnati, O. Eight industrial classes for men have been formed at the Hughes and Woodward High Schools in machineshop practice, cabinet-making, wood turning, pattern-making, foundry practice, forging, house framing, mechanical drawing, architectural drafting, shop mathematics and printing.

NOW, ARE THERE ANY QUESTIONS?

This department is intended for the convenience of subscribers who may have problems which trouble them. The editors will reply to questions, which they feel they can answer, and to other questions they will obtain replies from persons who are competent to answer. Letters must invariably be signed with full name of inquirer. All questions are numbered in the order of their receipt. If an answer is desired by mail, a stamped envelope should be enclosed. The privilege of printing any question and reply is reserved. Address, Industrial-Arts Magazine, Milwaukee, Wis.

Text and Tools on Beaten Brass Work.

361. Q.—I am casting around for a text and tools on beaten brass work. Will appreciate it if you will put me in touch with the publishers and titles.—*W. N. N.*

A.—*Rose's Copper Work*, $1.50, The Davis Press, Worcester, Mass., and *Payne's Art Metal Work*, $1.50, Manual Arts Press, Peoria, Ill., are both good texts. *Haas's Art Metal Work and Jewelry*. $1, The Sequoyah Publishing Co., Oswego, N. Y., is a good text and also gives information on selection and use of tools and equipment.—*L. J. H.*

Finishing Copper and Brass Trays.

368. Q.—How is the green finish obtained on copper and brass trays?—*R. G. W.*

A.—Have work clean and drop in a solution composed of 1 part of perchloride of iron and 2 parts water and then allow to dry. Different shades of olive green can be obtained by varying the length of time work is in the solution.—*J. H.*

Genuine Rush.

484. Q.—I wrote last summer asking the addresses of firms who carried rush for refinishing rush-bottomed chairs, and you sent me two—one here and one in Chicago, but I found that the "rush" they carried was made of paper and not like the original. Can you give me any further help in the matter?—*M. L.*

A.—L. and J. G. Stickley, La Fayette, N. Y., can furnish the old-time rush for seating chairs.

Gluing Fine Cabinetwork.

486. Q.—Could you tell me if, at the present time, there is on sale a liquid which applied to the outside surface of fine and intricate cabinet work, will prevent the absorption of the superfluous glue by the wood and, at the same time, have no effect on the finish of the wood.—*R. J. F.*

A.—The following method is the only one which in the end will produce satisfactory results in a fairly practical manner. The first requirement calls for some type of glue heater, the lower portion of which contains hot water. For a heater, I have found that the round disc type of electric toaster, which can be purchased for about $2.75, is an economical and quite rapid form of heater. There is almost no danger from fire and if the water level in the lower boiler is carefully looked after there is small danger of the glue being spilt by over-heating.

The piece to be glued up in the shop, especially if it is the only one of its kind on hand, should be assembled in the "dry," carefully clamped and tested for alignment and squareness. The clamps should then be removed, carefully laid in order so as to be readily accessible when needed, and the pieces laid down in order as they are taken apart. A little care in explaining to the boys the necessity of this method will succeed in producing very rapid results in the assembling of the completed shop article. With the hot glue now at hand, proceed to put sufficient glue into the mortises and other joints, putting the pieces together in order and clamping up as fast as assembled. It is at this point that the element of "team work" enters very strongly into the successful operation of this plan. It is advisable to appoint the owner of the piece gang foreman at this time, delegating one or more boys as the size of the piece may necessitate to aid him in the assembling of this shop problem. Make him responsible for the alignment and inspection of the piece before calling the shop instructor for his O. K. The gang foreman should see that the piece is carefully squared up and then proceed to wash all excess glue from the cross rails and stiles, legs, etc., by the use of a piece of clean waste or other cloth, and plenty of hot water from the bottom of the glue kettle. There need be no fear that this method will produce any detrimental results thru the use of hot water and where the final inspection by the shop instructor is thoro and careful, the results will be very pleasing. I have proposed this method in the past both in regard to the heater and the washing to the instructors of shops in different cities and have learned later that both were an unqualified success.

For a coater previous to gluing, will say it is the practice of the bellymen in piano factories to use sandarach varnish to coat the wood nearest the joints in the sounding board previous to the gluing up. In this way they can quickly remove any glue before it succeeds in staining the whiteness of the carefully selected spruce and when the finished piece is run thru the sander or belter, the slight amount of sandarach is easily removed. This method, however, is impracticable for school shops and while I mention it, I do not in any way recommend it for that purpose. The hot water method is quick, efficient and beneficial in that it opens the pores of the wood, raises the grain and altho requiring second sanding, leaves the wood in perfect condition for staining. I cannot see how the questioner gets into trouble with gluing hand carved trays, for if his moulding is glued up and applied to the panel previous to carving, the subsequent chisel work should remove any glue. Perhaps his method of assembling is at fault. If such is the case, I shall be glad to go into the matter further.—*Ralph G. Waring.*

Books on Cement and Concrete.

501. Q.—Please send me a list of books and pamphlets on "Cement and Concrete," available for manual training courses.—*J. H. R.*

A.—Most of the literature that would answer the purpose indicated is in the form of bulletins or booklets issued by the United States Government, by various cement companies and by the Portland Cement Association, 111 West Washington St., Chicago, Ill. Few, if any, books are in existence that treat of concrete from a popular standpoint and at the same time are so arranged as to be particularly suited to student purposes. Below is a list of recommendations:

Concrete on the Farm and in the Shop. By H. Colin Campbell. Price, 75 cents. The Norman W. Henley Publishing Co., 132 Nassau St., New York; *Reinforced Concrete Design.* Faber and Bowie. Longmans, Green & Co., New York; *Principles of Reinforced Concrete Construction.* Turneaure and Maurer. John Wiley & Sons, Inc., New York; *A Treatise on Masonry Construction.* Baker. John Wiley & Sons, Inc., New York; *Concrete, Plain and Reinforced.* Taylor and Thompson. John Wiley & Sons, Inc., New York; *Concrete and Reinforced Concrete Construction.* Reid. The Myron C. Clark Publishing Co., 13-21 Park Row, New York. *Cassell's Reinforced Concrete.* Bernard L. Jones. Cassell & Co., Limited, New York; *Reinforced Concrete, A Manual of Practice.* McCullough. Cement Era Publishing Co., 538 S. Clark St., Chicago; *Masonry and Reinforced Concrete*—(Five Parts). American School of Correspondence, Chicago; *Reinforced Concrete in Europe.* Colby. The Chemical Publishing Co., Easton, Pa.—*H. Colin Campbell, Director Editorial Bureau, Portland Cement Association, Chicago, Ill.*

Stains for Christmas Toys.

489. Q.—Can you tell me of a chemical stain that will dye white pine—(a) a bright yellow (like bi-chromate of potass, when first applied); (b), a bright red, and (c), a dark green? Aniline dyes are not available now, and commercial stains are not to be had at a reasonable price. The stains are for toys and would be applied boiling hot.—*H. D.*

A.—For a bright yellow, red, and dark green stain, I will say that the questioner's only resource is to revert to the use of vegetable dyes now coming into use to a slight

extent because of the dearth of anilines. He can best prepare these in the following manner:

Decoction of logwood treated with:	Gives:
Sal ammoniac	Yellow
Tannic acid	Yellow red
Sulphide of hydrogen	Yellow brown
Pure dilute nitric acid	Red
Dilute hydrochloric acid	Red orange
Zinc chloride	Red brown

Decoction of fustic extract treated with:	Gives:
Tannic acid	Yellow
Alum	Yellow
Pyrogallic acid	Yellow
Dilute hydrochlorie	Yellow brown
Concentrated hydorchloric	Red
Concentrated nitric acid	Red yellow
Dilute nitric acid	Brown

Decoction of French berries with:	Gives:
Ferric nitrate	Dark olive green
Cupric sulphate	Greenish yellow

My suggestion would be in the use of these materials, which may be obtained thru a wholsesale drug house, that he place the different materials in granite or glass vessels, boil until a strong solution is obtained and strain thru cheesecloth. An example of this procedure would be to take a pound of French berries, place in three gallons of boiling water, reduce by boiling two and a half gallons and use this solution as the standard solution. Now make up different solutions of the chemical salts or acids in varying strengths, as for example, one, two, four, or six ounces of acid or chemical to the gallon of water. By adding known amounts of the acid or chemical solution to the standard solution, definite color solutions may be obtained. It is advisable that these stains be applied hot or the pieces may be dipped in the boiling solution.

My other suggestion would be that the questioner obtain tubes of chrome green, chrome yellow and vermillion ground in Japan and with these colors tint a gallon of benzine or gasoline until the pieces obtain the desired shade when dipped. Caution should be exercised in the use of this type of stain that the draft in the room does not blow across exposed solutions toward any source of fire as I have known gasoline to back fire a distance of twenty-five feet when the draft from a window blew the fumes toward a plumber's torch.—*Ralph G. Waring.*

490. Q.—Can you give me a receipt for a home-made wood filler and stopping for nail holes?—*H. D.*

A.—I believe that the following formula is the best under practically all conditions:

12 parts pure boiled linseed oil.
6 parts brown Japan drier.
1 part turps.

Pour these materials into a pail, add all the ground silex which this amount will absorb, which in case a teacup is the standard of measurement, will be about six pounds. Let this material stand over night before using, after which it will be about right to use as a stopping when tinted to match the woodwork. For use as a filler, reduce with gasoline or turpentine to the consistency of skim milk. Apply with a stiff brush across the grain; rub with a leather faced block when the filler has partly lost its gloss; clean up with a piece of burlap by rubbing across the grain; finish by cleaning with the grain with a piece of clean muslin or other cloth. Let dry 48 hours before varnishing.—*Ralph G. Waring.*

Clay Modeling.

495. Q.—I would like to know just what importance is given to clay-modeling in the grades, in the schools of the country. Is the subject receiving as much attention as formerly? We have our own adobe clay which the Mexicans will bring in for us and can have any amount we want.

Also can you recommend some real good books on the subject?—*B. P.*

A.—Clay-modeling for elementary grades is receiving more thoughtful and discriminating attention than ever before. Yet it is not by any means receiving the attention it so richly deserves. It is the best medium for giving an appreciation of form in three dimensions. This sense of form is in much need of cultivation.

The best two books are *"Modeling for Public Schools,"* by Walter Sargent, J. L. Hammet Company, Boston; *"Clay Work,"* by Frances Lester, Manual Arts Press, Peoria, Ill.—*S. J .V.*

Cutting Spirals.

499. Q.—Kindly inform me thru your magazine or via another source, how the spirals are cut on the spindles and posts of furniture of the sixteenth, seventeenth and eighteenth centuries.—*G. A. R.*

A.—All modern furniture factories doing period work are equipped with a "Fluting and Twist" machine with which spirals of almost any size and pitch may be cut. The cutters must be ground to fit the contour desired.

The machine consists of a base, a bed that is pivoted to the base and may be adjusted to any angle desired for taper turning and fitted with the necessary gears and rack for the purpose of feeding the stock into the cutters. The cutter head is so arranged that it may be adjusted to any angle up to 45° to the right or left. The beds are made in different lengths.

There are several good belt sanders on the market for sanding twist turnings.

The method employed in cutting spirals on spindles and posts during the sixteenth, seventeenth and eighteenth centuries was that of hand carving. The writer knows of no other satisfactory method than those stated above. —*Conrad Weiffenbach.*

Repairing Vitrolite Table Tops.

503. Q.—Is there any satisfactory way to mend vitrolite glass (milk color) table tops?—*R. F. N.*

A.—A simple fracture in a vitrolite table top may be repaired by the use of a rock cement such as marble workers use in repairing marble slabs or tile workers use in setting tiles.

In its chemical composition and manufacture vitrolite resembles flint and glass and there is no completely satisfactory method of repairing it, just as there is no satisfactory method of repairing plate glass.

Books on American Woods.

538. Q.—Please send me names of books on classification and description of common woods. I am endeavoring to make a collection of woods to be placed on exhibition in the manual training shop.—*R. S. H.*

A.—*American Woods,* R. B. Hough. 11 volumes. Price, $55. R. H. Hough, Lowville, N. Y.

Handbook of the Trees of the United States and Canada, R. B. Hough, Lowville, N. Y.

Lumber and Its Uses, R. S. Kellogg. Price, $1. The Bruce Publishing Company.

North American Trees, N. L. Britton. Price, $7. Henry Holt, New York.

Wood and Forest, Wm. Noyes. Price, $3. The Manual Arts Press, Peoria.

Our Trees—How to Know Them, C. M. Weed. Price, $3. House Beautiful Publishing Company, Boston.

Principal Species of Wood, C. H. Snow. Price, $3.50. John Wiley & Son, New York.

Finishing Copper Bowls.

359. Q.—Will you kindly inform me thru your Query Column how the green finish is obtained on copper bowls, etc.?—*R. G. W.*

A.—Have bowl clean and free from least grease, then warm bowl and immerse in a solution of one part sulphate of copper crystals and ten parts ammonia. Remove and allow to drain and dry.—*L. J. Haas.*

The Illinois Manual Arts Association has announced its convention for 1917 to be held at Peoria, February 9 and 10. The Peoria school authorities are making large preparations for entertaining the meeting. President L. Day Perry of Joliet has practically completed the program.

Mechanical Technology

A catalog containing notes on forge shop exercises and illustrations of forge shops, showing the various types of installations, and complete descriptions of Buffalo down draft forges, blowers, exhaust fans, anvils, drills, punches, shears, forge tools, etc., with sample layouts.

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October 3rd, 1916.

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Dear Sirs:—

I am in receipt of a copy of Mechanical Technology, and I wish to thank you for forwarding it so promptly. The main difficulty, however, was that no sooner had I received it than Mr._____, head of the forge department at the _____ Technical High School, corralled it and claimed that as he was using Buffalo Down Draft Forges your firm should be willing to furnish him with a copy of this valuable publication, consequently I am no better off than when writing you before, and as Mr._____, who is in charge of forging at the College here, is also anxious to get a copy, I thought that possibly you would be willing to send me two additional copies, one for this office and the other for Mr._____.

I might say that during the three years that your forges have been in operation at the _____ Technical High School they have given entire satisfaction both to the day school students and the evening school industrial classes as well.

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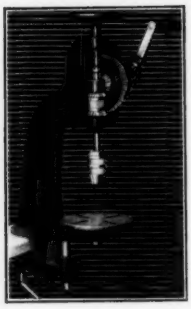

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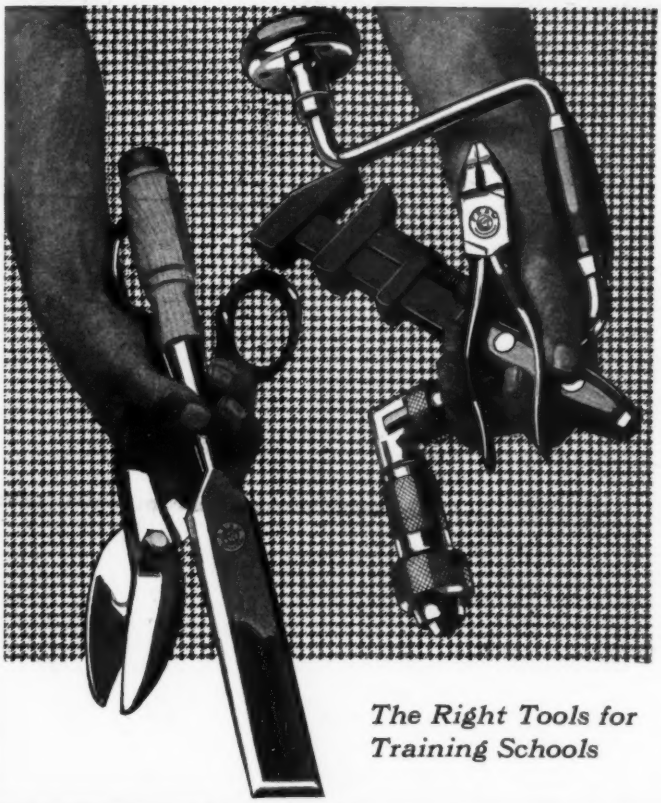

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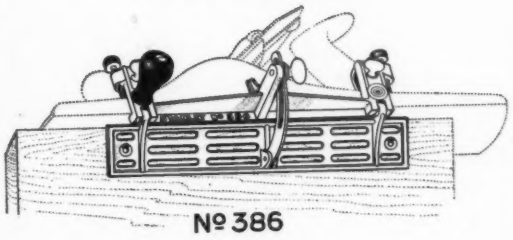

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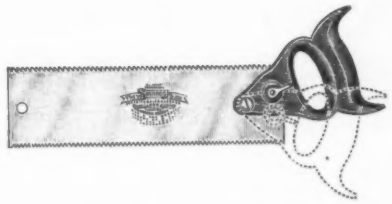

Double Edge Hand Saw

In some schools a Handy Saw is used by the smaller children. This has rip teeth on one edge and cutting-off or cross-cut teeth on the other edge. The blade is 3½ in. wide and may be secured in any length from 8 in. to 18 in. This saw is for cutting smaller boards or blocks.

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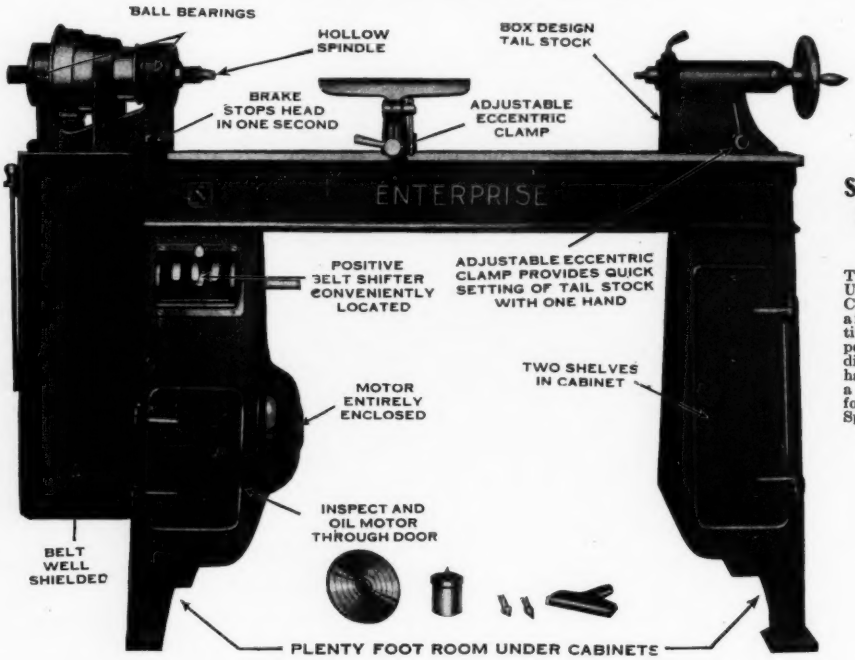
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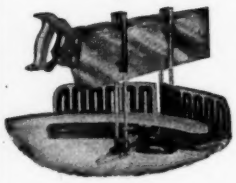

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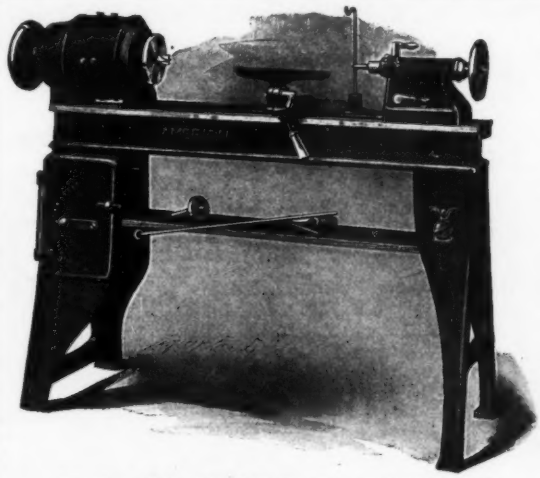

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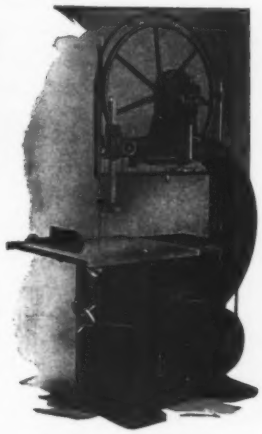

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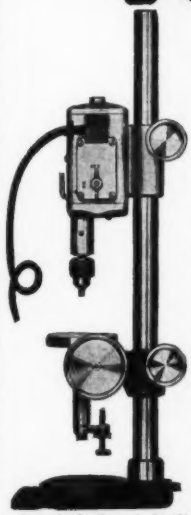

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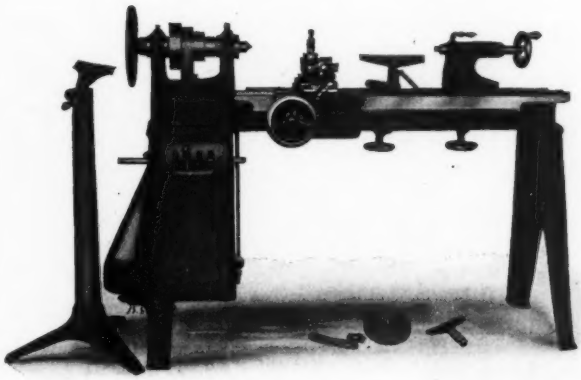

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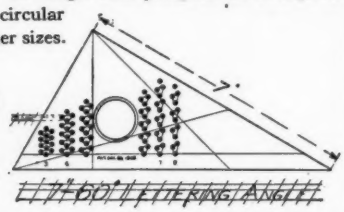

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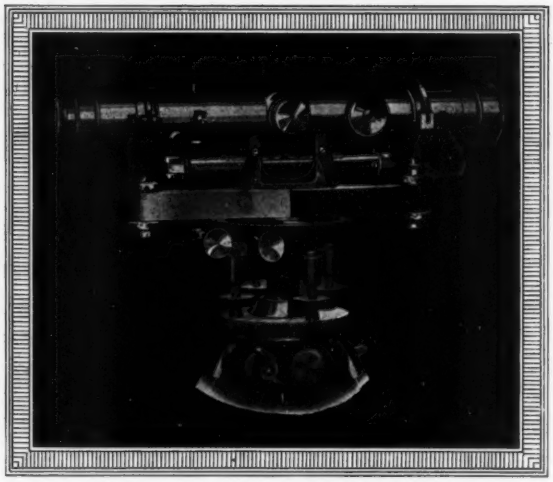

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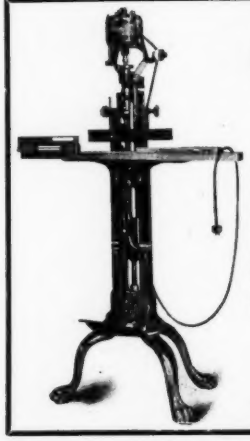

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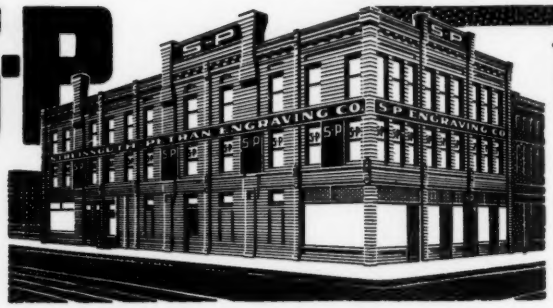

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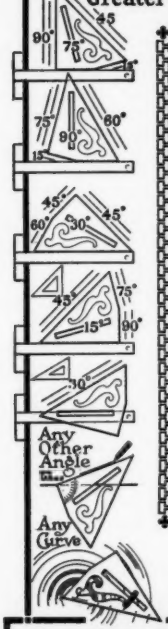

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TABLE OF CONTENTS

Vol. V **December, 1916** **No. 12**

PAGE

The Reminiscences of a High School Drawing Teacher, *Maud M. Miles* 513
A New Vocation—Diversional Occupation, *Louis J. Haas* 516
Christmas Boxes for All Grades, *Alma C. Field* and *Lillian R. Field* 523
Teaching Apprentices the Art of Printing, *Robert F. Salade* 527
Wood Finishing and Finishes, *J. M. Dorrans* 531
Art Metal Work, *Douglas Donaldson* 533
Primary Construction, *Edward F. Worst* 535
Editorial 544
The Boston Continuation School, *H. Stanwood Field* 546

Problems and Projects:

- Wagon Jack, *Wm. H. Mulvey* 550
- Button Holes, *Marian L. Whitwood* 550
- Seed Corn Tree, *Louis M. Roehl* 551
- Drawing Table for Woodworking Benches, *R. E. Abercrombie* 552
- Telephone Pad, *E. H. Bruce* 553

Recent Books and Pamphlets 554
Now, Are There Any Questions? 555
Bookbinding as a Subject for School Instruction, *Elno Reavis* 547
News Notes XIII
News for the Users of Industrial Arts Equipment XXII
Personal News XXIV

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SUBSCRIPTION INFORMATION.

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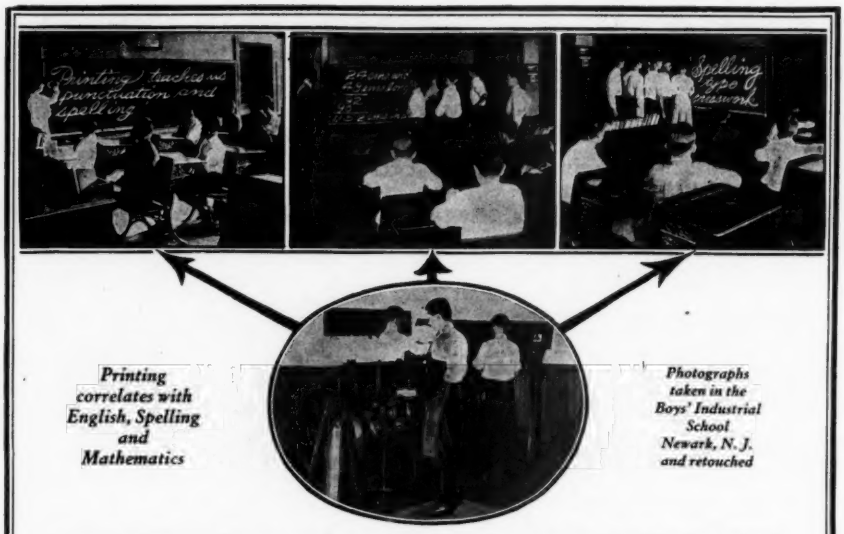
Notice for discontinuance of subscriptions must reach the Publication Office in Milwaukee, at least fifteen days before date of expiration, with full balance due to date. Notices for changes of address should invariably include the old as well as the new form of address.

EDITORIAL CONTRIBUTIONS.

The board of editors invites contributions of all kinds bearing upon the Industrial-Arts Education, Manual Training, Art Instruction, Domestic Science, and related subjects. Unless otherwise arranged for, manuscripts, drawings, projects, news articles, etc., should be sent to the Publication Office in Milwaukee, where proper disposition will be made. The Board of Editors meets once or oftener each month in Chicago, and all contributions submitted are given careful attention. Contributions when accepted are paid for at regular space rates. In all cases manuscripts should be accompanied by full return postage.

The Industrial-Arts Magazine is on sale at Brentano's, New York City, and A. C. McClurg & Co., Chicago.



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Photographs taken in the Boys' Industrial School Newark, N. J. and retouched

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Mr. William B. Kamprath, Principal of Elm Street School, Buffalo, N.Y., has had a printing outfit in his school for several years. In an article dealing with printing as a school subject, he writes:

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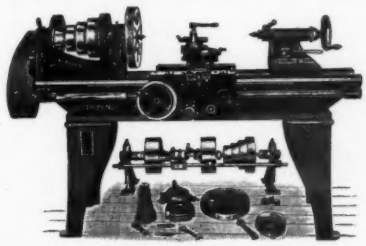

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NEWS NOTES.

Philadelphia, Pa. New courses in dietetics, physiology and millinery have been introduced in the evening school at the William Penn High School.

Boston, Mass. A free course on the theory and practice of continuation school work has been opened at the Continuation school for the benefit of teachers. The course covers fifteen months.

During the year ending June 30, 1916, the United States Bureau of Education's specialist in industrial education spent 181 days in working outside the city of Washington, 96 of these being spent in educational survey work. During the year he visited 36 cities, in fourteen states, traveling 24,921 miles. Some idea of the growing work of the division is disclosed in the records of the correspondence. Notwithstanding protracted absences from the office the correspondence in industrial education has increased more than one-third over that of last year: 1915, letters received, 1,351; sent, 1,052; total, 2,403; 1916, received, 1,717; sent, 1,511; total, 3,228. In addition a large volume of printed and multigraphed matter emanates from this division. During the year seven letters in the "Vocational Education Letters" series have appeared, and 54,531 copies distributed. Bulletins and reports to the number of 4,067 were collected from various sources and sent out to the special mailing list.

A unique plan for preparing teachers of trade subjects has been proposed to the Pennsylvania State Education authorities by the State Federation of Labor. In brief, the state is asked to advance $25,000 annually for the education of a class of forty young men in the State College. The young men are to repay the amounts loaned them within a period of five years so that the fund will be perpetual. The class is to be limited to young mechanics who desire to teach trade subjects.

Plans have been begun in the War Department at Washington, for the organization of a bureau to have charge of military training in schools, colleges and private academies, and summer camps.

Pratt Institute, Brooklyn, N. Y., opened its work of the new school year in September, with large classes in fine and applied arts, household science and art, science and technology and library science.

New courses in foundry practice and sheet-metal drafting have been introduced in the department of science and technology. Mr. J. A. Rathbone is in charge of the former and Mr. A. F. Payne of the latter. A third course in internal combustion engines has been added with Mr. John P. Kottcamp as instructor.

The course in trade training for prospective teachers has reopened for its fourth year.

Between seven and eight thousand boys and girls have been placed in positions by the New York Vocational Guidance Association. According to Prof. E. W. Weaver, executive officer of the association, 30,000 children leave the schools of New York City annually to enter employment. Thus far the activities of the association in co-operating with employers has made it possible to place only a small fraction.

Living Picture Festivals of an educational character constitute a new idea which Miss Emma Grattan, a teacher in the Cedar Rapids schools, has developed. The festivals present the leading masterpieces of painting in living form by a clever combination of costume, scenery, lantern slides, lighting and music. The programs are chiefly intended to portray great pictures which all people should know and enjoy. Incidentally the schools have found the festivals an easy means of raising funds for the purchase of pictures and schoolroom decoration.

The first-year high school boys of the Alliance, O., high school recently completed eighteen typewriter tables for

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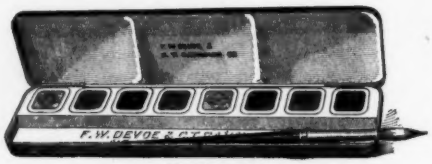

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the commercial department. These tables were made of chestnut and were finished in early English. The work was done under the supervision of Mr. Wendell P. Pfonts.

Redwood, Cal. A manual training building for the Sequoia High School is to be erected on a piece of land given to the school by the city.

Green Bay, Wis. A class for carpenter apprentices has been formed at the evening school conducted in the continuation building. Carpentry, mathematics and design are offered.

The Manual Training Department of Millikin University, Decatur, Ill., has reopened with a complete set of benches and other equipment The entire department has been rearranged, providing space for a machine and gluing room and a wood-turning room. The new features have been made possible thru a gift of $10,000 to the department.

The New Sheldon School at Grand Rapids, Mich., has recently been provided with a scheme of interior decoration in which the children of the grade schools have had a part. Early last spring, Supt. W. A. Greeson and School Architect Henry H. Turner conceived the idea of stenciled friezes for the walls of the corridors and the kindergarten room of the building. It was originally intended to invite the high school students to prepare the designs but on the advice of the art supervisor, the children of the sixth grades thruout the city were asked to prepare designs.

The designs which were full size, were made on the blackboard or on large sheets of wrapping paper. For the kindergarten, the collection included designs of toys, circus animals, domestic pets and Mother Goose characters. The prize design was a clever arrangement of playful rabbits under prim little Noah's ark trees. The stencils for the upper and lower corridors are floral motifs, conventional in treatment, and harmonize with the ornament used on the entrance doors of the building. All of the designs were made by the pupils under the direction of the art instructors.

Cincinnati, O. A class in architectural and mechanical drawing and house planning has been formed at the Woodward High School for evening students. One high school credit is given for work completed.

Ashtabula, O. The students of the Manual Training Department during the past school year made the manual training and domestic science furniture for the new high school recently occupied. The practical value of the work has been recognized and will be extended in the future.

Philadelphia, Pa. The Trade School for Girls has reopened with courses in dressmaking, millinery, lamp-shademaking and novelty work. Classes will be formed for groups of 15-year-old girls who desire to take a special line of work.

Carthage, Mo. The third and fourth-year manual training students have been organized into vocational classes under the direction of Mr. Bruce D. Richards. Each class has a foreman selected from the students, who serves for one week only. Each student serves in rotation so that at the end of the year all will have occupied the position.

The problems which the class will begin with are a rack for magazines and a cabinet for the agricultural bulletins of the United States Department of Agriculture. The plans for the pieces have been drawn by the pupils and approved by the instructor. In keeping track of the work and the cost for finished articles, a class book is kept in which are recorded the time consumed by the pupil and the amount of work turned out.

Paterson, N. J. Vocational work has been introduced in the high school under the direction of Mr. James F. Mason. The first year's work will be limited to instruction for machine apprentices. The course which seeks to train mechanics for positions as foremen and overseers is open to boys who

have had one year of high school. The subjects offered include English, algebra, science, industry, mechanical drawing, civics, shop accounting, industrial history, safety first, shop mathematics, hygiene, physical culture, business methods and shop bookkeeping.

Milwaukee, Wis. An evening course in electricity, embracing mathematics for tradesmen and a study of electrical machinery, has been introduced at the Boys' Trade School.

Waycross, Ga. A Domestic Science Department has been opened in the high school. Miss Bernice Geddes is director.

A Vocational School is to be erected near Independence, Mo., for young negroes. The school will have sixteen acres of ground and will be erected under the direction of Francis E. Parker.

The cash value of vocational training in the Chicago public schools has been demonstrated in a recent report on students in the Lane Technical High School. The report shows that the students earned an aggregate of $180,762 during vacation. One hundred and twelve plumbers' apprentices earned $10,966; 111 prevocational students earned $2,647.45; 1,201 high school students earned $56,550.57, and 92 collegiate students earned $10,598.90.

Fifty-six prevocational students worked in machine-shops; 35 in electrical shops and garages; 24 in printing and allied trades; seventeen in carpentershops; eleven as draughtsmen; five as engineers' helpers and nine with telephone companies.

The report shows that 1,516 of the 2,600 students were employed and earned an average of $119.30 each for a period of three months. A number of untrained students earned amounts ranging from $150 to $250 working in places calling for no particular skill.

Fort Wayne, Ind. An automobile course has been introduced at the Vocational School, with Mr. A. W. Black as instructor.

Fond du Lac, Wis. An advanced millinery class has been formed at the evening school. Mrs. H. J. Rueping, an experienced designer, is in charge.

San Francisco, Cal. The success of the cobbling class at the Ethan Allen School has made it appear advisable to introduce similar departments in all the schools.

At the Agricultural and Industrial Exposition of the boys and girls of Vermont, held at Burlington the week of October 9 to 14, the team from St. Johnsbury won the state championship of Vermont for pupils of the grammar grades in farm and home handicraft work.

The team of four boys gave working demonstration of chair caning, upholstering, rope work and the making of concrete forms. They made a half-size form of a flight of five steps with a wall and afterward mixed the concrete and cast the steps before the people.

Out of an entry of 31 projects from St. Johnsbury, 26 were awarded prizes. Seven each of first, second and third, three fourth prizes and two fifths.

During the same week a team of three boys from the St. Johnsbury High School representing Vermont state were competing at Springfield, Mass., at the great Agricultural and Industrial Exposition held jointly with the National Dairy Show and the United States Department of Agriculture. These boys won second prize, New York being first, and Massachusetts third.

Out of an entry of 12 projects the St. Johnsbury boys took 12 prizes. Sherburn Potts, one of the team, received the sweepstake prize as best boy judge of handicraft work of the North Atlantic States.

The prize money from both the Burlington and Springfield affairs totaled $107 in gold. Mr. L. H. Baxter is instructor of Industrial Training at St. Johnsbury, Vt.

St Paul, Minn. The girls of the Douglas School graduating class will demonstrate the practical value of the domestic arts course with the completion of their graduating outfits in the spring. The classwork for the winter and spring will include the planning, sewing and fitting of dresses

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The book takes up the making of pins, fobs, chains, rings, pendants, monograms, setting odd-shaped stones, mounting baroque pearls, monograms, miscellaneous pieces, precious stones.

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129 Michigan Street Milwaukee, Wis.

for the girls. The materials and trimmings will be purchased wholesale with money contributed by the girls.

Holland, Mich. A course in domestic art embracing millinery and sewing, has been introduced in the evening school.

Richmond, Ind. A class in practical carpentry has been formed at the evening school, with Mr. Frank Burr as instructor.

Manchester, N. H. Courses in fine and domestic arts have been added in the high school.

An art institute for city school teachers was held recently at St. Paul, Minn. The classes, which met after school hours, received instruction in drawing and painting from Miss Lillian Swan, the drawing supervisor.

Reading, Pa. Evening schools have been opened for young men and women who are regularly employed during the day and who wish to fit themselves for some special line of work. Short unit vocational courses are offered in salesmanship, house carpentry, pattern-making, shop arithmetic, electrical work, mechanical drawing, machineshop practice, show-card writing, woodturning, sketching and estimating, sewing, cooking, home economics, home furnishing, civil service, automobile construction and operation.

St. Paul, Minn. Evening classes in cabinet-making for women have been opened in two grade schools. Students are required to pay for the materials and the use of tools.

Toy-making and toy-repairing have been undertaken by the boys of the Manual Training Department as a means of helping in Christmas giving. A class of 24 boys has begun the construction of dolls, wagons, baby buggies, jumping jacks, monkeys, tool chests, mechanical building outfits and a variety of animals and manikins that work with strings and springs. In addition, each boy has been asked to bring all the wornout, broken or unused toys to the school for repair and painting. After the toys have been put into shape for use, they will be collected and turned over to charitable organizations for Christmas gifts to poor children.

The Holyoke Day Vocational School, Holyoke, Mass., is this year offering five courses in carpentry, cabinetmaking, machineshop work, patternmaking and printing. It is estimated that 85 per cent of those in attendance last year will be enrolled the present year.

Minneapolis, Minn. Under the supervision of the principals, the several city high schools will this year offer vocational guidance to students in selecting special lines of work and in developing natural ability.

It has been arranged that one teacher in each school shall act as special advisor to students, giving part or entire time to commercial students and to other students who are pursuing occupational courses. Such teachers are to be assigned to the staff of the vocational guidance department, of which Mr. D. H. Holbrook is director.

In the high school the boys are permitted to choose the trade which they wish to follow. The training which they now receive is directly related to the chosen occupation which they pursue until the completion of the course.

The boys of the manual training department of St. Paul will this year begin the construction of policemen's clubs, semaphors and bertillion cabinets. The bertillion cabinets are to be made of metal and will hold one hundred pictures and descriptions. In addition, the boys have been asked to make a number of birdhouses for the St. Paul Park Board. The work will be done under the direction of E. M. Peiffer, Thomas Peterson and L. E. Forst.

A demonstration car in home economics is touring the State of Illinois. The car, which is fully equipped for demonstration purposes, is under the direction of the household science department of the University of Illinois. The car began its trip on October first.

Department of Vocational and Industrial Training, Cedar Rapids, Ia. Contains complete outlines of the courses of study in the prevocational, manual training, domestic science and vocational departments of the Cedar Rapids schools. Prepared by Mr. W. A. Richards, director.

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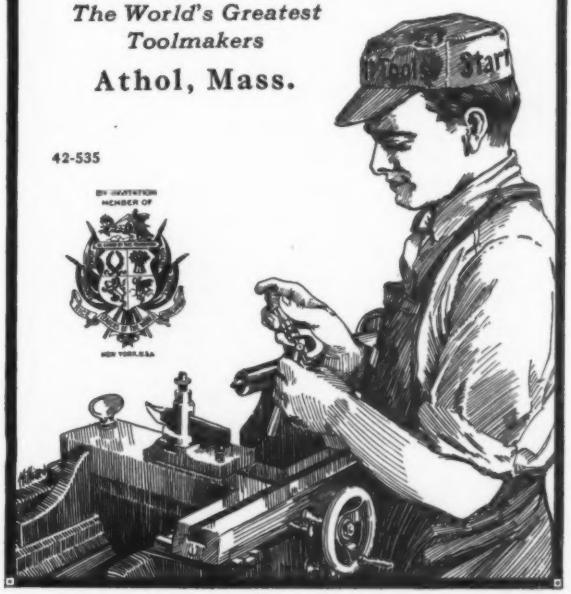

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Rochester, Minn. A course in mechanics embracing cabinetmaking, wood-turning, pattern-making, carpentry, blacksmithing, machineshop work and mechanical drawing is offered in the high school. The course is open to any young man of mature age who is not able to take a regular course in the high school. The school day is from eight until five. A certificate of attendance and a rating card are issued upon the completion of the course.

Buffalo, N. Y. A course in automobile repairing and construction has been introduced at the Elm Vocational School.

The Miami Valley Industrial Arts Association held its annual meeting on October 21st at Dayton. About 75 teachers from the Miami Valley, Cincinnati and across-the-river cities attended the meeting.

During the meeting, addresses were given on "The Cultural Side of Industrial Education" by Mr. Chas. W. Cookson; "Measuring Progress in School Subjects" by Mr. T. M. Muir, and "Developments—General and Mechanical" by Mr. E. C. Schwertman.

The members listened to a report of the Committee on College Entrance Credits by Prof. Usry of Ohio State University, which discussed entrance credits in manual training. There was also an exhibit of the grade shopwork of the seventh and eighth grades in the South Ludlow Street School.

Mr. R. L. Cooley of the Milwaukee Continuation School, Milwaukee, Wis., has co-operated with the state jewelers' association in a movement for the education of salesmen and women employed in retail jewelry stores. The opening of a jewelry training class has for its aim the making of more and better customers for the retail dealers.

Calumet, Mich. A course in housewifery, including the planning, cooking and serving of meals, has been introduced in the evening school.

New York, N. Y. A thoro training in trade dressmaking has been made possible with the formation of a class at the Harlem Evening High School of Women. Instruction is offered in drafting, grading, draping, designing and practical experience in making garments for women.

San Angelo, Tex. An equipment of machinery valued at $700 has been installed in the manual training department of the high school.

The boys of the manual training department at Spokane, Wash., will this year make three dozen dust pans and five dozen buckets for the use of the janitors in the schools.

Louisville, Ky. A technical course covering four years has been inaugurated at the Louisville Boys' High School for the benefit of students who do not expect to enter a technical college. The course is open to boys of the grammar grades who agree to remain in constant attendance at the school.

Cincinnati, Ohio. A trades sewing course is to be offered to girls in the continuation school.

Parsons, Kans. The evening school has opened with a wide range of work including woodworking, gas power, gas engines, domestic science and art, wood-turning and basketry.

Boston, Mass. A course in vocational guidance for boys of high school age has been introduced at the Civic Service evening school. Mr. J. M. Brewer is in charge.

Somerville, Mass. An addition is planned for the vocational school to accommodate the automobile shop, the mechanics shop and locker room space. It is planned to have the boys' classes do all the inside finishing of the building.

The Beaux Arts Institute of Design has announced two free courses of instruction for the current winter. The first course will include mural painting and the painting of ornament and will be conducted under the direction of a

committee of the Society of Mural Painters and of the Beaux Arts Institute. The second class will be a free course in sculpture for men under the joint direction of a committee composed of members of the National Sculpture Society and of the Beaux Arts Institute.

Information concerning both courses may be had by addressing Mr. Fred B. Clarke, B. A. I. D. Building, 126 East 75th Street, New York City.

Mr. Forrest A. Dunn has been elected instructor in woodworking in the new Junior High School, Salina, Kans.

The New Hampshire Manual Training Club held its annual meeting on October 20th in connection with the meeting of the State Teachers' Association. The following officers were elected for the ensuing year:

President, Rolland R. Gove, Concord; vice-president, Kenneth Harper, Exeter; secretary-treasurer, Jules Weisman, Concord.

Among the useful ways of opening the pages of periodicals for teachers are those of the Literary Digest and the Popular Science Monthly. The former sends out weekly lesson plans based on the material in its pages for work in English, History, and Civics and the latter issues monthly "service sheets" of magazine material for class use for physics and manual training teachers. Mr. Raymond B. Brownlee, of the Stuyvesant High School, New York City, writes the notes for physics teachers, and Mr. Clyde A. Bowman, instructor in industrial arts, Teachers College, Columbia University, New York City, formerly of the State Normal, Stevens Point, Wisconsin, those for manual training teachers

New York, N. Y. A class in commercial and industrial art has been formed at the Stuyvesant Evening Trade School. The course is open to girls and women and instruction and materials are free to those over 14 years who have artistic ability or who require artistic knowledge in their occupation. Instruction is given in fashion and costume designing, lettering, wash pen and ink rendering, sketching from life and advertising illustration.

St. Paul, Minn. The boys of the manual training department will this year begin the construction of special school buildings. A miniature of an open-air school will be made by a group of boys under the direction of Mr. L. G. Forst.

The model as worked out will be one-eighth scale. The floor will be laid on a concrete foundation, the supporting walls will be of concrete and the roof supports of hollow pipes. A canvas fly will extend above the regular roof to act as an additional water shed.

The specifications for the structure were worked out last year by Donald V. Ferguson, Supervisor of the Manual Training Department.

Drawing Stand designed by Mr. R. E. Abercrombie.
(See page 552)

New Books of the

Wiley Technical Series

JUST PUBLISHED

Plain and Ornamental

FORGING

By ERNEST SCHWARZKOPF
Instructor of Forging, Stuyvesant High School, New York City

A text in elementary forging for apprentices and high school students, with advanced forging, toolmaking, art forging and hammered metal work exercises for evening classes.

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264 *pages*, 5¼x8, *over* 400 *figures*. *Cloth*, $1.50 *net*.

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Assistant Professor in Charge of Vocational Courses in Engineering and Correspondence Instruction, Iowa State College

This book has been written for use in home-study instruction, either with or without assistance, and has been made brief so that the reader will not be burdened with an undue amount of material. The student will learn from this book, not only to make drawings, but to read and know them.

200 *pages*, 8x10¾, *illustrated*. *Cloth*, $1.50 *net*.

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An elementary text-book on the steam engine and accessories, for colleges, higher technical schools, and evening classes.

400 *pages*, 5¼x8, *illustrated*. *Cloth*, $2.00 *net*.

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Teacher at .....
(Name of School.)

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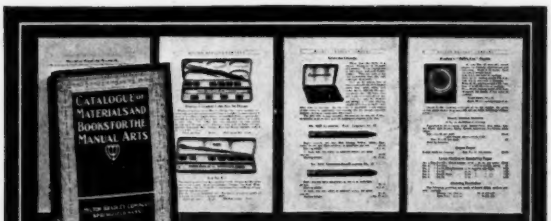

A Guide Book to Better Results

This new Bradley Catalog shows the materials you need for the most effective work in all branches of the manual arts. It contains a complete list of

BRADLEY'S WATER COLORS

mixing palettes, water cups, brushes, Bradley's Crayons, Drawing Papers, Drawing Tables, Models, Materials and Tools for Basketry, Stenciling Materials, Weaving Looms, Bookbinding Supplies, and many exclusive Bradley portfolios and specialties applying to these departments.

It is a book which will prove of real value to every teacher of drawing or manual arts. Your copy is ready and will be sent postpaid in exchange for your address on a postal.

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Thomas Charles Co., Agents, Chicago

Hoover Bros., Agents, Kansas City, Mo.

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HELP IN LUMBER PROBLEMS.

Judging from inquiries which have come to *The Industrial-Arts Magazine*, teachers of manual training in small communities have difficulty at times in obtaining information on lumber.

Help in all ordinary lumber problems may be had from the "lumber association" formed by the producers of the commonly used woods. The following associations will assist teachers in finding the nearest dealer who handles the respective lumber which they produce and will also send pamphlets and in some cases, samples of finished wood:

Gum Lumber Manufacturers' Association, Memphis, Tenn. Booklets on the use of gum will be sent free and assistance will be given in overcoming difficulties in handling gum lumber.

North Carolina Pine Association, Norfolk, Va. Sample panels of North Carolina Pine will be sent to teachers in the Central Atlantic States and Ohio, the territory reached by the firms composing this association. An architects' and contractors' handbook will be sent under certain conditions to teachers of carpentry.

Southern Pine Association, New Orleans, La. This association will give assistance in referring teachers who are in the market for Southern Pine, to producers and dealers. Information on finishing will be sent thru a cooperating manufacturer of stains and varnishes. A "manual" has been prepared giving the safe load that timbers of various sizes will carry. Other literature is in preparation.

Northern Hemlock and Hardwood Manufacturers' Association, Oshkosh, Wis. A series of birch panels in selected finishes has been prepared for free distribution to teachers. Pamphlets on birch and hemlock are available. A book of "Practical Country Buildings" will be sent to teachers of carpentry and farm mechanics under certain conditions.

Southern Cypress Manufacturers' Association, New Orleans, La. The well-known "Cypress Pocket Library" is distributed by this Association. Such volumes as "Home Grown" Furniture, Sugi Cypress, Farm Carpentry, Porches, Pergolas, Arbors, will be sent gratis to teachers.

American Walnut Association. 1404 Starks Bldg., Louisville, Ky. A book on the use of black walnut in furniture construction and cabinet work will be sent gratis, to teachers.

Arkansas Soft Pine Bureau, Bankers' Trust Bldg., Little Rock, Ark. An exhibit of Arkansas pine panels has been prepared and will be sent to schools under certain conditions. Literature on the use of pine is available.

White Pine Bureau, Merchants' Bank Bldg., St. Paul, Minn. Information concerning dealers in white pine will be sent to teachers who are seeking names of concerns.

Also, a booklet, Helen Speer's Book of White Pine Toys and Furniture, containing detailed directions and drawings for making toys, may be had gratis, upon request.

Oak Flooring Bureau, Conway Building, Chicago. Booklet on oak flooring to teachers of carpentry.

Boston, Mass. Follow-up work is to be systematically conducted this year in connection with the trade training for students in industrial occupations. The trade school seeks to learn how the instruction given in the school meets the demand of the trade; the character of the place to which the student has been sent; the kind of associates which the child has; the sanitary surroundings; whether the child is underpaid or worked overtime; what recognition of work is given in the way of advancement, and also what conditions need to be adjusted for the interest of the employe and the employers.

TWO NEW BOOKS FOR YOUR HIGH SCHOOL CLASSES

Costume Design and Home Planning, by Estelle Peel Izor. Clearly written, captivatingly illustrated, establishing a sane, sensible, well balanced attitude toward "Dress" and the "Home."

Cloth, 210 pages, price 90c.

Applied Drawing, by Harold Haven Brown, applies Art pictorially and industrially. Admirably written, containing over 100 beautiful illustrations.

Cloth, 272 pages, price $1.00.

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BOSTON NEW YORK ATLANTA DALLAS

PERSONAL NEWS.

Miss Frances Forchheimer has been appointed secretary of the placement bureau of Cincinnati, to succeed Miss Eleanor Martin, resigned.

Mr. A. S. Milton of Winona, Minn., has been appointed Director of Industrial Training at Waukegan, Ill., to succeed Mr. B. B. Burg.

Miss Kathryn Gordon of Milton, Mass., has been appointed assistant instructor in home economics for the extension division of the University of Maine. Miss Gordon was formerly in charge of the home economics department at Franklin College.

Mr. Pliny Johnston of Cincinnati, O., has been appointed director of the co-operative course for the high schools of Dayton. The co-operative course calls for attendance of high school pupils at school and shop on alternate weeks. The academic year consists of 48 weeks and students will complete the course in four years.

Mr. J. S. Selden has been appointed instructor in manual training in the colored night schools at Norfolk, Va.

Mr. A. Clifford Tagg, formerly Supervisor of Manual Arts at Rockford, Ill., has accepted a position as instructor in woodworking in the high school at Battle Creek, Mich. Mr. Tagg is succeeded at Rockford by Mr. Charles Mullin.

Mr. John P. Casey, of the Boys' Trade School, Worcester, Mass., has been appointed instructor of the teachers' training class of the school.

Mrs. Calvin, an expert in home economics, has been appointed by the United States Bureau of Education, to conduct an investigation of the domestic arts department of the schools, the homes of pupils and factories of Elyria, O. The present study has been begun in connection with the survey of the school system by the Federal Bureau.

Mr. J. M. Nicklesen of Cloquet, Minn., has accepted the position of Professor of Mechanical Engineering in the College of Engineering, University of Michigan.

Mr. William Noyes has entered upon his duties as Director of the Manual Training Department of Central High School, Duluth, Minn.

Miss Elizabeth Swick of Baltimore, Md., has been appointed instructor in art in the Central High School, Duluth, Minn.

Mr. Bernard B. Burg, for four years Supervisor of Manual Training at Waukegan, Ill., has become Supervisor of Vocational Education at Highland Park College, Des Moines, Ia.

Miss Harriet Seibert of Stevens Point, Wis., has been appointed Director of Drawing and Construction Work in the grade schools at Jacksonville, Ill.

COMING CONVENTIONS.

Nov. 28—Fine Arts Section (New York State Teachers' Association) at Buffalo.

Dec. 27-29—Manual Training Section (Oregon Teachers' Association) at Portland. There will be a commercial and educational exhibit.

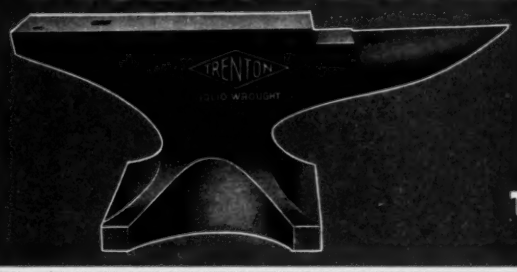
Jan. 18-20—The Vocational Education Association of the Middle West at Chicago. Albert G. Bauersfeld, Secy., Chicago.

Feb. 9-10—Illinois Manual Arts Association at Peoria. B. G. Leuchtenberger, Secretary, Centralia.

Feb. 21-24—National Society for the Promotion of Industrial Education at Indianapolis. Alvin E. Dodd, Secy., New York City.

Apr. 5-7—Eastern Arts Association at Philadelphia. Fred P. Reagle, Secy., Montclair, N. J.

TRENTON SOLID WROUGHT ALL NEW STEEL CORRECT DESIGN ANVILS



Buy an Anvil that will give you satisfactory service always. Trenton Anvils are the favorite of blacksmiths and horseshoers everywhere because they are properly designed and forged from new steel. Hollowed out broad base prevents rocking. Special tool steel face with tempered edges. Made with a variety of horns and accurate. Hardie and Pritchell Holes. Write for booklet describing Trenton Anvils and Indian Chief Vises.

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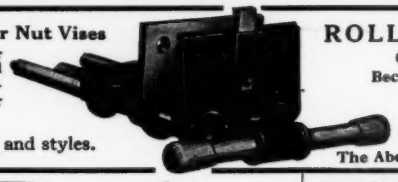
There IS NO EQUAL to Roller Nut Vise Construction
No. 70 D—Seven other sizes and styles.



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Give the Most Satisfactory Service in School Shops
Because of their Simplicity, Strength and Refinement of Construction
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The Abernathy Vise & Tool Co. 231 Englewood Ave., Chicago, Ill.

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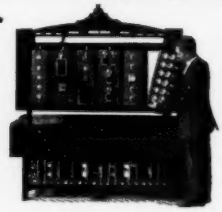

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"Everything for Basket Making"
Reeds, willow, chaircane (95c), cane and reed webbing, flat rush, raffia, Indian ash splints, braided rush and straw, dyes and finishes. Any amount of reeds sold from a half pound up. Also tools and books of instruction. Send $1.00 P. O. order for Priscilla Basketry Book, full instructions and assortment reeds, enough to make several baskets.
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Write today for catalog and prices
F. A. RAUCH & COMPANY, 410-412 So. Market St., Chicago, Ill.

NEWS FOR THE BUYERS OF INDUSTRIAL ARTS EQUIPMENT.

A NEW SHELDON CATALOG.

E. H. Sheldon & Company has just issued catalog No. 14 which is a splendid 40-page catalog of Industrial School Appliances for bench-work, wood-turning, machine work, and drawing departments.

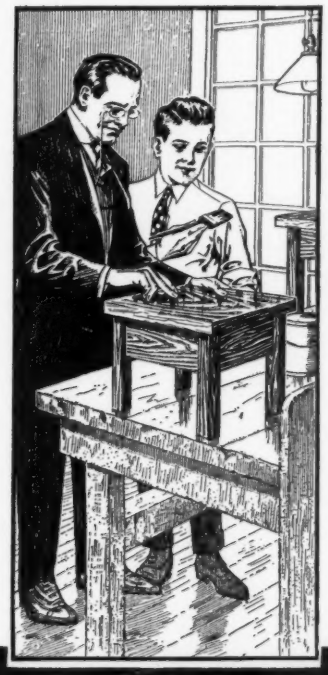
The first half of the catalog contains illustrations and descriptions of manual training benches in a variety of styles, including the standard benches used in schools in the largest cities of the United States.

The remaining pages are devoted to a number of turning lathes in different styles, drawing tables, vises, clamps, etc.

Catalog No. 14 will be of considerable interest to manual training directors and others contemplating the equipment of manual training shops. A copy of the catalog will be sent upon request by addressing E. H. Sheldon & Company, Muskegon, Mich.

PRANG "ENAMELAC."

A new waterproof color medium that will interest both manual training and art teachers has been placed on the



BRIDGEPORT STANDARD

Talks to Manual Training Instructors & Students

Instructor: Loud tones and shiny surfaces are a thing of the past. The vogue now is the new Bridgeport Standard tones which many of the leading furniture manufacturers have adopted.

Student: I saw some very attractive furniture in one of the big hotels recently. It was so unusual I took the trouble to find out what finish was used. It was Bridgeport Standard.

Instructor: I am glad to see you so observing and so painstaking.

Ask for set of finishes showing the exact effects used by leading furniture houses in all of the newer tones.

We are prepared, at a mutually agreeable time, to have an expert demonstrator appear before classes and assist instructors and students in turning out the most efficient work.

Be sure to get our **special proposition** for your Fall requirements.

The Bridgeport Wood Finishing Co., New Milford, Conn.

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market recently by the Prang Company. It bears the trade name "Enamelac" and is a rapidly air-drying enamel that can be applied to metal, wood, cardboard, etc. The colors are opaque and can be applied one over the other in decorative designs.

Enamelac has been found especially valuable in finishing coping-saw projects, turned wood boxes, metal containers, etc. The density of the material and its peculiar smoothness makes it easy to apply and insures uniformly satisfactory results even when small, inexperienced children use it. The fifteen colors in which enamelac is manufactured, make possible every artistic combination that may be desired.

The material is put up in small cans, which retail at fifteen cents. Color cards and descriptive material are available for teachers.

CHANGED HIS MIND.

"What? Buy that stuff?" asked the teacher. "Nix. I wouldn't have that wood for a gift. It's as full of holes as a cheese."

They were examining lumber for the school shops and the dealer had led the teacher to a large pile which he promised would be interesting for some outdoor projects which the school had in hand.

"That is 'pecky cypress' " said the dealer. "It is the heart wood of some of the oldest cypress trees. I'll admit that it looks rotten—but it isn't. It's as honest as it's homely," and then he launched into an enthusiastic recital of the value of pecky cypress. He told how the germs which were the cause of the chinks and crannies in the wood had impregnated the logs with an anti-rot material that made it practically everlasting. He spoke of the remarkable wearing qualities of the wood, of its strength and toughness. He pointed out the artistic possibilities of pecky cypress in making rustic garden arbors, etc. Finally he advised the teacher to read a convincing scientific discussion of the value of "pecky cypress" in the Cypress Library.

All readers of the *Industrial-Arts Magazine* may obtain the "Pecky Cypress" booklet of the Cypress Library by writing to the Southern Cypress Manufacturers' Association, 1250 Hibernia Bank Bldg., New Orleans, La.

NEW ADSTYLE TYPE FACES.

Teachers of printing who are seeking new and artistic types will be interested in the "Adstyle" family just completed by Typecraft Department of Barnhart Brothers & Spindler, Chicago. The new family includes nine distinct series to meet every practical need of booklet, advertising and general job work.

The "adstyle" faces have been designed to give the printer a medium for expressing the best principles of the "new art" which has so much influenced all of the graphic arts during the past two or three years. However, only the best features of the style have been abstracted in the "adstyle" faces and freakish details have been eliminated. The type appeals to us as useful for the widest variety of purposes.

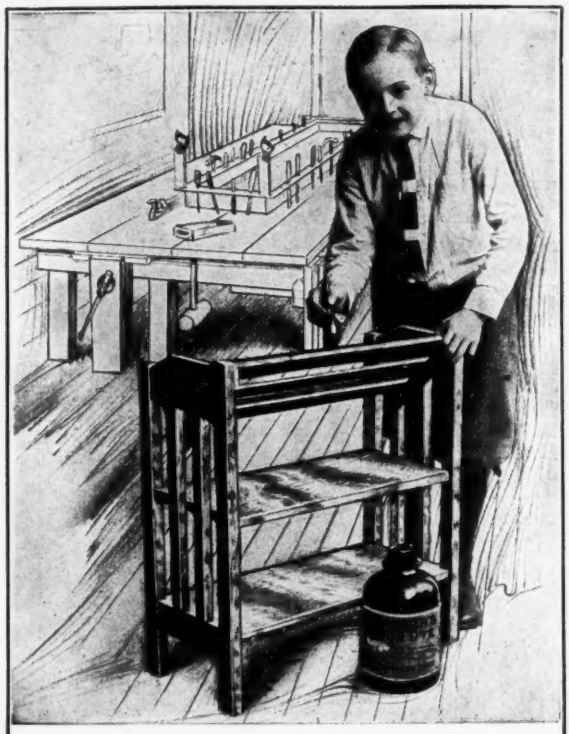
A handsome "adstyle" pamphlet, that is in itself a pleasing example of the new art, has been prepared. Copies will be sent gratis to any printing teacher upon request.

ANNOUNCE EDITORIAL BOARD.

Atkinson, Mentzer & Company have just announced the completion of a new advisory editorial board for the applied arts drawing books. The board represents the widest variety of educational interests. It includes Mr. Walter Scott Perry of Pratt Institute, Miss Florence H. Fitch of Indianapolis, Mr. Walter Sargent of the University of Chicago and Dr. Frederick G. Bonser of Teachers College, New York City.

PHOTOGRAPHIC COMPETITION.

Teachers of cement work in public and private schools will be interested in a photographic competition instituted by the Portland Cement Association, 111 West Washington St., Chicago, Ill. Cash prizes for the best pictures of certain articles made of cement will be awarded. In addition, all pictures which are suitable for advertising or booklet illustrations will be purchased by the association at a fair price.



The Finish Is Important

SURELY this is a subject which should be given its share of attention, for a beautiful model may be ruined if improperly finished, while the defects of a poorly constructed model are minimized if well finished.

JOHNSON'S WOOD DYE

is just the preparation for staining models. It is very easy to use—goes on like oil without a lap or a streak. It is made in 17 attractive shades—which may be easily lightened and darkened. It dries ready for the finish in fifteen minutes—this is particularly advantageous in crowded centers. Over the Dye apply a coat of

JOHNSON'S PREPARED WAX

This gives a soft, artistic finish of great beauty and durability. It is clean and easy to use and economical—no tools or brushes required—all you need is a cheese cloth rag.

No Manual Training Department is complete without our Instruction Book on wood finishing. Use coupon for free copy.

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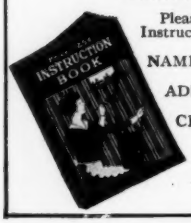

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RracINE, WIS

PERSONAL NEWS.

Mrs. Nellie T. Osgood, who for four years has been supervisor of art in Atlanta, Ga., has been appointed substitute teacher in the art department of the Chicago Normal College to take the classes of Mr. George W. Eggers. Mrs. Osgood is a graduate of the Chicago Art Institute, has studied art in Paris and has wide experience as an art teacher and supervisor.

Mr. Earle S. Russell, formerly at Cochituate, has accepted a position as teacher of the industrial arts in the high school of Wayland, Mass.

Mr. A. D. Preston, who served as director of manual training at Coshocton, Ohio, during the past ten years, has become supervisor of manual training at Delaware, with a substantial increase in salary. Mr. Preston's work in the Delaware schools consisted of installing a complete, new equipment of machinery and tools.

Mr. J. L. Cleaver, a graduate of Mechanics Institute, Rochester, N. Y., has been added to the vocational staff of the High School at Mechanicsville, N. Y. Mr. Cleaver will teach wood and metal working.

Mr. George F. Vosburgh has been appointed supervisor of manual training in the high school at Mechanicsville, N. Y., at an increase in salary of $300.

Mrs. H. L. Lawson, who was for several years director of industrial education for the state of New Mexico, has resigned and is living in Washington, D. C.

Mr. Walter H. Johnson, a graduate of the Gorham, (Me.) Normal School, has recently been elected supervisor of manual arts in the public schools of Central Falls, R. I.

Mr. E. J. Ward, director of manual training and athletics in the State Agricultural High School of Warren, Minn., has resigned to take charge of the manual arts department of the Shawnee, Okla., public schools. The Shawnee schools are advancing rapidly along this particular line and are contemplating some new and valuable additions to the department in the near future.

Mr. B. M. Hansen, who was connected with the State Agricultural High School, Beach, N. D., during the past year, has accepted a position with the Reno, Nevada, schools. Mr. Hansen has been in the manual training field for the past four years.

Mr. Paul W. Gawne has taken charge of the manual training department of the Sioux Falls High School, Sioux Falls, S. D. Mr. Gawne was for the last three years supervisor of manual training for the high school and the grades at Kokomo, Ind.

Mr. Charles Marten, who was formerly director of industrial education at the Jewish Orphan Asylum in East Cleveland, Ohio, has taken charge of the vocational and prevocational work at Homestead, Pa. The Homestead schools were surveyed in May, 1916, for the purpose of relating the work of the school more closely to the industries of the community. Homestead has practically only one industry, the making of steel, and a great proportion of the boys enter that industry. In working out the revised courses of study Mr. Marten is relating closely the academic courses with the laboratory and shop work.

Miss Edna V. Chapman, Supervisor of Domestic Science at Waterville, Me., has resigned her position.

Miss Mary F. Baldwin has been appointed head of the Domestic Science Department of the Central High School, Grand Rapids, Mich.

Mr. Wilbur L. Casler of Calumet, Mich., has been appointed as instructor in the Manual Training Department of the University of Chicago. Mr. Casler formerly taught in the high school at Marquette, Mich., and in the continuation school at Superior, Wis.

Mr. Chester B. Lambrith was recently chosen as head of the Cincinnati Industrial Arts Club, a new club organized by the teachers of the industrial department of the Cincinnati schools.

Miss Mildred Walker of Providence, R. I., has been appointed Supervisor of Drawing at Cumberland, to succeed Miss Gaskin.

INDUSTRIAL-ARTS DIRECTORY

All firms listed in this directory have been thoroly investigated and their goods are "guaranteed" by us. We allow no entry here except after investigation. Teachers who specify these goods for purchase thru boards of education have therefore positive assurance of satisfaction.

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Millers Falls Co.
Vaughan & Bushnell Mfg. Co.
Buffalo Forge Co.
Columbian Hardware Co.
Columbus Forge & Iron Co.

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The Prang Co.

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Milton Bradley Co.
Joseph Dixon Crucible Co.
The Prang Co.
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Atkinson, Mentzer Co.

ART-PICTURES.
The Prang Co.

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Hammacher, Schlemmer & Co.
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The Sterling Wheelbarrow Co.

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The Peck, Stow & Wilcox Co.
Vaughan & Bushnell Mfg. Co.

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Adjustable Clamp Co.

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Joseph Dixon Crucible Co.
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DOMESTIC SCIENCE SUPPLIES.
Everett Frain Co.

DRAFTING FURNITURE.
E. H. Sheldon & Co.

DRAWING INSTRUMENTS.
Earl J. Early Co.
Frederick Post Co.
F. Weber & Co.

DRAWING PAPER.
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RULES.
L. S. Starrett Co.
Stanley Rule & Level Co.

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Simonds Mfg. Co.
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The Sterling Wheelbarrow Co.

WOODWORKING MACHINERY.
Oliver Machinery Co.
Enterprise Co.
Amer. Woodworking Mach. Co.

WRENCHES.
The Peck, Stow & Wilcox Co.

REFERENCE INDEX

	Page
Abbott & Co.	XXII
Abernathy Vise & Tool Co.	XXII
Adjustable Clamp Co.	IV
American Type Founders Co.	XII
American Woodworking Machinery Co.	V
Atkinson, Mentzer & Co.	XXI
Barnhart Bros. & Spindler.	VIII
Binney & Smith.	XX
Milton Bradley Co.	XX
Bridgeport Wood Finishing Co.	XXIII
Buffalo Forge Co.	I
Clark. Jr., Electric Co., Jas.	V
Columbian Hardware Co.	IV
Columbus Forge & Iron Co.	XXII
Dee & Co., Thos. J.	XIV
Devoe & Raynolds Co.	XIV
Dewey Blueprint Co.	XXII
Disston & Sons, Henry, Inc.	II
Dixon Crucible Co., Joseph.	XVI
Drake, Louis S.	XXII
Early Co., Earl J.	X
Electrical School Equip. Co.	XXII
Enterprise Co., The.	IV
Espositer, Varni & Co.	XVI
Frain Co., Everett.	VIII
Gum Lumber Mnfrs. Assn.	II
Hammacher, Schlemmer & Co.	XIII
Jennings Mfg. Co., Russell.	II
Johnson & Son, S. C.	XXIV
Kawalle Automatic Mitre Box Co.	IV
Manual Arts Press.	XVIII
Millers Falls Co.	II
Morse, Warren W.	VIII
Oliver Machinery Co.	V
Pease Co., C. F.	VIII
Peck, Stow & Wilcox Co.	III
Platt Co., Chas. S.	XVI
Post Co., Frederick	VIII
Prang Co., The	4th cover
Rauch & Co., F. A.	XXII
Sheldon & Co., E. H.	VII
Simonds Mfg. Co.	III
Smith, Herbert L.	XXII
South Bend Lathe Works.	XIII
Southern Cypress Mnfrs. Assn.	2nd cover
S. P. Engraving Co.	X
Stanley Rule & Level Co.	III
Starrett Co., L. S.	XVII
Sterling Wheelbarrow Co.	XV
Taylor-Holden Co., The.	XVIII
Vaughan & Bushnell Mfg. Co.	IV
Wallace Co., J. D.	VIII
Weber & Co., F.	X
Wells & Son Co., F. E.	VII
Wiley & Sons, Inc., John.	XIX

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